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The Impact of Healthcare Professional Students' Racial, HIV-Related, and Abortion-Related Biases on Recommendations for Prenatal Care

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THE IMPACT OF HEALTHCARE PROFESSIONAL STUDENTS' RACIAL, HIV-RELATED, AND ABORTION-RELATED BIASES ON RECOMMENDATIONS FOR PRENATAL CARE

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by

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Abstract

Black women and HIV-positive women have increased maternal mortality rates and other negative pregnancy outcomes, in part due to disparate prenatal care. Although women who seek abortions do not have the same negative outcomes, abortion stigma exists and is normalized in healthcare. Limited work has examined prenatal care provision for women in these groups, and even less work has explored the prenatal care provision by healthcare trainees (i.e., medical, nurse practitioner, and physician assistant students). Examining the role of bias on the prioritization of prenatal care items by healthcare trainees is imperative. Healthcare education sets the stage for future practice, and as such it is important to examine students' biases and assumptions before they become full-time providers. One hundred twenty-six participants were recruited from various healthcare training programs to complete an online experiment using a 2 (patient race: Black, White) x 2 (patient HIV status: HIV-, HIV+) x 2 (patient abortion status: has never had an abortion, has had an abortion). Participants were randomly assigned to read one vignette for a patient, then were asked to prioritize two sets of prenatal care items for their patients in two minutes or less. They also completed a series of measures to be included as potential covariates in our analyses.

Through a combination of univariate Kruskal-Wallis tests, ordinal logistic regressions, and binary logistic regressions we assessed seven hypotheses. For H1 through H3, we predicted that each individual condition (patient race, HIV status, and abortion status) would interact with respondent implicit biases to predict care item prioritization. We found some significant effects for H2, the interactions of HIV status and HIV-related bias, such that, generally, individuals with higher HIV-related stigma were more likely to screen patients for drug use. We also found significant effects for H3, the interactions of abortions status and abortion stigma, such that students, generally, were more likely to screen patients who have had abortions for tobacco use. For H4 through H7, we looked at the unique

interactions of our conditions, controlling for implicit biases. Though none of the overall models were significant, we did find several significant pairwise comparisons across these hypotheses.

There are many potential explanations for our findings, including a small sample size yielding lower power than anticipated, a need for more complex or ambiguous patient vignettes, and the possibility that the respondents' biases do not impact their perceptions of prenatal care. Potential limitations include the lack of statistical power across many analyses due to an error in the implicit bias task software, a sample of primarily medical students, and ongoing issues such as our nation's grappling with systemic racism and the COVID-19 pandemic. Despite a lack of confirmation of many of our hypotheses, this study lays the foundation on which to build subsequent studies related to implicit bias and prenatal care, along with important information for amending healthcare training programs, reducing bias among healthcare trainees, and improving pregnancy outcomes for all.

The Impact of Healthcare Professional Students' Racial, HIV-Related, and Abortion-Related Biases on Recommendations for Standard Prenatal Care

In September 2017, American tennis star Serena Williams gave birth to a baby girl via Cesarean-section. What should have been a joyous time for the new mother quickly turned scary, as she began to experience difficulty breathing. Williams, who has a history of blood clots, thought she might be experiencing a pulmonary embolism. She alerted the doctors and asked for a CT scan and medication to treat the embolism, but it was suggested that pain medication from the C-section was making her confused. After hours of waiting, and only after being given tests that did not detect the problem, Williams was given the CT scan she had initially asked for, and it was determined she did, in fact, have an embolism (Haskell, 2018). While she was eventually given the life-saving treatment she had asked for, the dismissiveness of the healthcare providers is concerning. If Williams had not advocated for herself effectively, her outcome could have been much worse.

Unfortunately, Serena Williams' story is not abnormal, and points to a potentially insidious pattern emerging in perinatal healthcare for women from underserved groups. Women from underserved groups experience paternalistic treatment from their prenatal care providers; this refers to a situation wherein providers determine that the patient's wishes not be honored, due to beliefs that a patient is unable to know what is best for them, medically (Dovidio & Fiske, 2012). Sometimes, providers' decisions go beyond paternalism to include moral surveillance, an interaction style through which providers communicate moral judgments about their patients to their patients, often through the questions they ask or care they recommend (Nack, 2008). This is especially concerning among pregnant women, who already face increased scrutiny and surveillance due to perceptions that they are the primary source of harm to their developing fetuses (Kukla, 2005).

Paternalistic treatment and moral surveilling can stem from *paternalistic prejudice* held against the targets of these attitudes and surveilling, wherein target groups are perceived as incompetent (Fiske, Cuddy, Glick, & Xu, 2002; Cuddy, Fiske, & Glick, 2008). In the context of the current study, target groups include Black individuals, women living with HIV (WLWH), and women who have had an abortion. Moral surveillance, especially, is faced by women with identities or characteristics that are perceived to be moral failings on their part, such as contraction of HIV or undergoing an abortion (Bersani, 1987; Sontag, 1989; Treichler, 1999). Increased moral surveillance comes from assumptions that these women had previously engaged in immoral activity, and as such must be surveilled closely to ensure they will not engage in activities that will endanger their children. The paternalistic behaviors and surveillance resulting from these biases may lead to disparate care among patients, which could disadvantage women from disenfranchised groups the most. As a result, it is imperative to understand how biases against these groups and resulting care recommendations are related. It is particularly necessary to examine the role between biases and disparate recommendations for prenatal care, due to increasing negative pregnancy outcomes among Black women and WLWH.

Despite improvements in healthcare and declines in infant death in the United States, the U.S. has among the highest rates of maternal mortality and other negative pregnancy-related outcomes among developed nations. Overall maternal mortality rates have more than doubled over the 23 years between 1991 and 2014, from 10.3 deaths per 100,000 live birth in 1991 to 25.4 deaths per 100,000 live births in 2014 (MacDorman, Declerq, & Thoma, 2018). The most recent estimates from the CDC (2020) show that maternal mortality decreased in 2018, at 17.4 deaths per 100,000 live births. However, maternal mortality is still especially high among women from marginalized groups, including Black women and women living with HIV (WLWH). Among Black women, maternal mortality rates were 37.1 deaths per

100,000 live births in 2018, more than three times the rates for White women (Hoyert & Minino, 2020). Similarly, WLWH are up to ten times more likely to die during pregnancy or shortly after giving birth compared to those not living with HIV (Calvert & Ronsmans, 2013; Kourtis, Bansil, McPheeters, Meikle, Posners, & Jamieson, 2006). Beyond maternal mortality, rates of other severe negative outcomes are elevated for Black women and WLWH, including pre-eclampsia and eclampsia (Agency for Healthcare Research and Quality, 2017), postpartum venous thromboembolism (Blondon, Harrington, Righini, Boehlen, Bounameaux, & Smith, 2014; Bibas, Biava, Antinori, 2011), and postpartum hemorrhage (Briley, Seed, Tydeman, Ballard, Waterstone, Sandall…& Bewley, 2014; Gyamfi Bannerman, Srinivas, Wright, Goffman, Siddiq, D'Alton, & Friedman, 2018).

The literature on pregnancy outcomes among women who have had an abortion, regardless of race or HIV status, show that women who have had an abortion do not face disparate outcomes, including maternal mortality and preeclampsia (Ralph, Schwarz, Grossman, & Foster, 2019; Eras, Saftlas, Triche, & Hsu, 2000; Saftlas, Levine, Klebanoff, Martz, Ewell, Morris, & Sibai, 2003). While not more likely to experience increased maternal mortality (Ralph et al., 2019), women who have had an abortion are a highly stigmatized group that faces discrimination from healthcare providers. Research on abortion attitudes among healthcare providers has long shown a range of stigmatizing attitudes about individuals who have abortions (Smith, Bartz, Goldberg, & Janiak, 2018). Medical students report that stigmatizing attitudes and discrimination toward individuals who have had abortions is a normalized part of medical culture (Smith et al., 2018). However, the stigma associated with having an abortion may lead to disparate treatment in healthcare, including prenatal care and recommendations for future pregnancies. Considering that roughly 24% of women in the United States will have an abortion at some point in her lifetime (Jones & Jerman, 2017), making abortion stigma and its consequences a public health concern.

It is important to recognize that there are multiple, interacting systems of oppression that produce different outcomes for women based on their identities and characteristics. Thus, there may be differential effects of multiple biases that have a detrimental impact on the prenatal care received. Black women are more likely than White women to be living with HIV (CDC, 2019). Further, both Black women and WLWH have higher rates of abortion than White women (Jones & Jerman, 2017) and women living without HIV (Pilecco, Teixeira, Vigo, Dewey, & Knauth, 2014; Haddad, Wall, Mehta, Golub, Rahangdale, Kempf… & Cohn, 2017). It is necessary to determine how individuals' identities and statuses are viewed by healthcare providers and how they interact to produce disparate prenatal care recommendations.

While some research has examined the perceptions of bias in reproductive healthcare among Black women (e.g., Attanasio & Kozhimannil, 2015), WLWH (e.g., Greene, Ion, Kwaramba, Smith, & Loufty, 2015), and women who have had an abortion (e.g., Cockrill & Nack, 2013), less work has examined healthcare professional students' recommendations. These students are in the process of learning to be healthcare professionals, which is a prime site for exploring and combatting any biases that may impact the care they give. As such, the current study aimed to use healthcare professional students (e.g., medical students, nursing students) to better understand the potential impact of a patients' race, HIV status, and abortion status on healthcare professional students' recommendations for care. As provider biases are connected to the care given to patients, better understanding these biases may ultimately help to ensure equitable care for all women and better outcomes for all.

Literature Review

Medical Paternalism and Moral Surveillance

The concept of paternalism, broadly, refers to the interference of an individuals' freedom to choose or act for themselves, justified with the reasoning that interfering was done for the good of the individual being impeded. Put simply, it is the idea of choosing for another, without their input, with the justification, "it's for your own good." This concept has been extended across multiple areas of study, including to the area of health and medicine. *Medical paternalism*, then, is a healthcare provider's determination about what is best for a patient, without the input of the patient. Often, this decision is made based on ideas that a patient is unable to make good decisions about their care for themselves, due to incompetence (Dovidio & Fiske, 2012). While paternalism stems from a place of beneficence, such as the "first do no harm" principle of the Hippocratic Oath, a paternalistic approach to patient care often leaves out the autonomy of the patient and does not consider patient preferences or desires. Particularly when paternalism is rooted in sentiments that a patient is unable to make good choices, it removes patient autonomy from the care equation. This is not to say that elements of paternalism are not always detrimental to patients; numerous scholars note that some paternalistic attitudes are inherent in medical training and practice (Drolet & White, 2012; Perry & Applegate, 1985; Thomasama, 1983). However, paternalism, rather than a reciprocal patient-centered or interpretive approach, places physicians in a position of power over patients.

Physician power over patients can extend beyond paternalistic decision-making to become moral surveillance (Nack, 2008). Moral surveillance involves providers' using their position of power to communicate negative judgments about patients' moral character during medical encounters (Nack, 2008). The concept of moral surveillance stems from research with women diagnosed with sexually transmitted infections (STIs), and the models of

communication used by their physicians. This work showed that providers with the morally surveilling communication style demonstrated judgments of women with STIs through the questions they asked and advice they gave. For instance, women with STIs were more likely to be asked about "promiscuous behavior" or asked questions like "Did you have rough sex?" These questions demonstrate judgments that women with STIs are promiscuous or engaged in inappropriate, immoral, or deviant behaviors. Beyond women who have been diagnosed with STIs, the concept of moral surveillance has been applied to multiple groups of women, including women who have had abortions (Cockrill & Nack, 2013) and pregnant WLWH (Greene, Ion, Kwaramba, Lazarus, & Loutfty, 2017).

Women who have had abortions have experienced moral surveillance (Cockrill & Nack, 2013). Women who were seeking or had previously had an abortion reported interactions with providers wherein providers acted in ways that conveyed judgments or suggested a woman's loss of social status due to her abortion. This included actions that convey providers' beliefs that women who have abortions are careless or heartless, or actions covertly demonstrating that the provider was judging the woman (e.g., repeatedly showing a woman the fetal heart tone). Additionally, moral surveillance has been reported among women living with HIV (e.g., Greene et al., 2017). Interviews with mothers living with HIV demonstrated that women encountered surveillance during pregnancy, childbirth, and in the post-partum period. Women reported feeling judged by providers because of their choice to have children, as well as receiving invasive, judgmental questions regarding how they contracted HIV and the circumstances surrounding conception. These findings suggest that moral surveillance may be a common experience among many groups of pregnant women.

Increased paternalism and moral surveillance may occur for pregnant women, based on the treatment of pregnant bodies as public domain (Kukla, 2005). There are a number of norms that dictate an appropriate lifestyle during pregnancy, which often prize the health and

well-being of a fetus over that of the pregnant individual (Bessett, 2010; Burton-Jeangros, 2011), and turn pregnancy into a series of moral imperatives forced upon women. Throughout pregnancy, women are often treated as the primary source of harm to their developing fetus. As a result, women must be constantly surveilled to ensure they won't hurt their fetus (Kukla, 2005). This assumption that women's actions could cause fetal harm leads to unsolicited attention and advice from others, including unwanted touching. The unwanted attention and advice received during a pregnancy is a form of surveillance (Longhurst, 1999). While most of this surveillance comes from non-medical professionals (Burton-Jeangros, 2011; Hallgrimsdottir & Benner, 2014), this does not mean that healthcare providers are immune to engaging in surveillance of pregnant women. This is not to say that pregnant women should not seek the advice of a healthcare provider; visiting an obstetrician or other provider is a crucial part of pregnancy and the site for prenatal care. However, it is possible that healthcare providers can still hold paternalistic attitudes and engage in inappropriate surveillance of pregnant patients.

Several studies suggest that pregnant women feel surveilled by healthcare providers, and that medical directives lead women to constant self-surveillance. In one study, women reported increased surveillance of bodily experiences by providers, as women were asked to report any pregnancy symptoms to providers for interpretation. Moreover, directions by providers to note and report any symptoms lead to increased self-surveillance by the women themselves. Directives regarding self-surveillance created a double-bind situation for women: increased reporting of symptoms caused them to fail as a "good patient," but succeed as a "good mother" (Bessett, 2010). Women who did not report every symptom felt like they were subject to being perceived as bad mothers. Other research finds that women experience their providers spending too much time on the risks of pregnancy and dictating what the women should and should not do; often this comes with a sense of failure if women do not follow

recommendations (Hammer & Burton-Jeangros, 2013). Feelings of surveillance are often in conjunction with experiences of paternalism. Participants in one study reported perceptions that providers were treating them like children, not adults (Burton-Jeangros, 2011). Often, paternalistic attitudes and surveillance toward patients is linked to biases held by providers (Dovidio & Fiske, 2012).

Bias and Stigma

Although there are a number of biological, social, and environmental factors that might lead to maternal mortality and health disparities, one factor that impacts individuals' pregnancy-related outcomes is healthcare providers' biased attitudes. In general, attitudes are one way that individuals organize their environments, predict what might happen, and make decisions quickly without much effort (Katz, 1960; Sanbonmatsu & Fazio, 1990). Prejudice refers to a specific, inaccurate, often irrational, attitude regarding individuals from another interpersonal group, often manifesting in the form of negative emotions, beliefs, and behaviors toward that group (Allport, 1954; Dovidio, Hewstone, Glick, & Esses, 2010). Biases based on prejudice involve overgeneralizations about specific groups, such as stereotypes, and preferences for one's own ingroup above all others (Dovidio et al., 2010). While individuals may be aware of some biases that they hold, individuals may be unaware of many other biases. Explicit biases are the biases that individuals are conscious of; in contrast, implicit biases are biases that are unconscious, and are activated by an individual belonging to the group for which prejudice exists (Greenwald & Banaji, 1995). Regarding explicit biases, people may be less motivated to report them, since reporting many biased attitudes, particularly those that are related to prejudice against social groups (e.g., racism), may reflect badly on the attitude holder. Thus, implicit and explicit attitudes may not match (Dovidio & Fazio, 1992); one might report having little to no prejudice against a specific group, but unconsciously hold biased attitudes.

Both types of biases can influence behavior, though explicit attitudes may drive different behaviors than implicit attitudes. Explicit biases are connected with deliberate, motivated behaviors, whereas implicit biases are related to more subtle, less deliberate behaviors. These are generally behaviors that are difficult to monitor and control, such as non-verbal cues and behaviors perceived to be unrelated to prejudice (Dovidio, Kawakami, & Gaertner, 2002). For example, studies have shown that White individuals' increased implicit racism is linked to less friendly behaviors toward Black individuals (Fazio, Jackson, Dunton, and Williams, 1995), as well as more spontaneous behaviors that indicate discomfort, such as increased blinking and less eye contact (Dovidio, Kawakami, Johnson, Johnson, and Howard, 1997). The current study aims to examine healthcare professional students' implicit biases and how these biases might impact the care provided; ideally, healthcare provision is behavior free from bias, as medical training is perceived to be standardized information taught to most aspiring healthcare providers. By assessing prenatal care provision for different groups of women, we can better understand the role of implicit biases.

Related to biases is stigma. Stigma, first introduced by Goffman (1963), can be conceptualized as a social process that marks individuals as having attributes or characteristics devalued by society. These social processes perpetuate stereotypes about, negative attitudes toward, and normalizes discrimination against individuals from marginalized groups. Stigma makes an individual "disqualified from full social acceptance" (Goffman, 1963, preface). Stigma can be conceptualized as the co-occurrence of four distinct components that mark and separate certain individuals from the rest of society (Link & Phelan, 2001). The first is labeling differences among individuals; these labels are often taken for granted in society as the status quo, and thus are more influential than we realize. The second component is association of these differences with negative attributes. Many of the labels assigned to individuals are associated with negative characteristics. For example,

individuals with mental illness may be labeled as dramatic or oversensitive, or people who have had abortions may be labeled as bad women and bad mothers. The third component deals with the separation of stigmatized individuals from the rest of society. Finally, individuals who have been labeled, assigned negative attributes, and separated from the rest of society experience a loss of social status and discrimination (Link & Phelan, 2001). These processes are related to bias and prejudice.

Extant research has explored prejudice and stigma separately, and has also mixed the two together, often rendering them interchangeable terms. A review of models of both prejudice and stigma suggests that prejudice and stigma are more similar than different, that they are each part of the "same animal" (Phelan, Link, & Dovidio, 2008). The primary difference noted in this review is that prejudice research tends to refer to an individual negative attitude, and that prejudice is more often used when referring to an identity such as gender or race. In comparison, stigma is a social process related to deviant behaviors and identities, many related to health and disease, such as mental illness and HIV/AIDS (Phelan et al., 2008). Although we acknowledge that prejudice and stigma are different, yet related constructs, the current study will assess both prejudice and stigma and their relation to prenatal care provision. Assessing bias is a necessary step in addressing disparate prenatal care provision among many groups of women, which may lead to negative pregnancy-related outcomes.

Increased paternalism or moral surveillance are often reflections of providers' prejudices against a target group, which can lead to discrimination in healthcare and negative outcomes (Dovidio & Fiske, 2012). Individuals' biases lead them to make judgments about people in a specific group, which generally reflect sentiments that group members are unable to make good or moral choices for themselves. Because group members are perceived to be unable to act in a way that benefits them, providers feel they have the authority to make

choices for them or provide increased surveillance and moral judgment. For instance, holding abortion stigma leads some providers to believe that women who have had abortions are deficient in some way; they might believe these women are immoral, or that these women are promiscuous and incapable of using birth control correctly. As a result, they might provide different healthcare to these women.

Paternalistic attitudes towards and surveilling of patients are compounded by the social acceptability of some biases. Generally, it is considered unacceptable to hold and express most biases. However, there are still some biases that are perceived as acceptable. These acceptable biases are rooted in notions that the targeted characteristic is something controllable by the individual displaying the characteristic. For example, bias against obese individuals is considered acceptable (Puhl & Brownell, 2001), due to perceptions that weight and body shape are controllable; anyone who cannot control their weight must possess negative attributes, like laziness and a lack of self-control (Cliff & Wright, 2010; Crandall & Schiffhauer, 1998; Puhl & Heuer, 2010). Individuals diagnosed with STIs are also another groups for whom stigma is considered appropriate. Individuals with STIs are openly mocked and made the punchline of jokes. Similarly, individuals who contract HIV are perceived to have control over their sexual behaviors and exposure to HIV. Because they did not behave in a way that avoided contraction of HIV, these individuals are viewed as dirty or irresponsible. Women who have had abortions also face socially acceptable biases, and are also viewed as irresponsible, selfish, and heartless for terminating a pregnancy (Kumar et al., 2009).

There is also a moral component to the seeming acceptability of specific biases. Biases are considered acceptable because individuals, such as those who have contracted HIV or those who have had an abortion, have engaged in immortal activity or are morally deficient in some way (e.g., Sontag, 1989; Treichler, 1999). WLWH are stereotyped as intravenous drug users, prostitutes, or sexually promiscuous women, who would not have contracted HIV

had they not engaged in immoral actions. Similarly, women who have had abortions are stereotyped as sexually promiscuous, as well as immoral due to their willingness to kill a child. Because these individuals are perceived to have made immoral choices in the past, it may be that healthcare providers believe they must make decisions for these women to prevent them from making immoral choices in the future. As a result, they may engage in increased moral surveillance of these women, which may manifest in their care recommendations.

Perceived Discrimination During Prenatal Care

Substantial research has been done on patient perceptions of discrimination from healthcare providers during prenatal clinic visits. This body of literature shows that Black women, WLWH, and women who have had abortions perceive that healthcare providers are biased, and these biases change the care given. First, Black women report discrimination from healthcare providers. Multiple studies demonstrate that Black women perceive increased bias by providers, which manifests in many forms. Among some providers, the discrimination is more covert, including decreased communication (Attanasio & Kozhimannil, 2015; Mazul et al., 2017; Salm Ward et al., 2013). Some work has found that Black women report that providers do not encourage them to seek prenatal care (Mikhail, 1999). Other discrimination is more overt, including healthcare providers making stereotypical assumptions about Black women. This includes healthcare providers assuming the women had multiple sexual partners or have multiple children (Thorburn & Bogart, 2005). Ultimately, perceived discrimination leads women to adhere less to prenatal care recommendations (Bengiamin et al., 2010; Gadson et al., 2017; Milligan et al., 2002), which contributes to negative pregnancy outcomes (Glurgescu, McFarlin, Lomax, Craddock, & Albrecht, 2011).

Similarly, WLWH also perceive discrimination during prenatal care (Ng, Macdonald, Loutfy, Yudin, Raboud, Masinde… & Antoniou, 2015). An abundance of work, internationally and from the U.S. and Canada, shows that WLWH experience discrimination and stigma from healthcare providers (Blake, Jones Taylor, Reid, Kosowski, 2008; Greene et al., 2015; Ion, Greene, Mellor, Kwaramba, Smith, & Barry, 2016; London, Orner, & Myer, 2008; Nattabi et al., 2009; Sowell & Misener, 1997). One Canadian study, the HIV Mothering Study, explored perspectives of pregnant WLWH during pregnancy and post-partum through interviews (Greene et al., 2015; Ion et al., 2016). Their findings showed that women experienced discrimination and stigma from healthcare providers, from having providers wear unnecessary protective layers (e.g., double gloving during examinations) to being turned away from hospitals prior to birth (Greene et al., 2015). Some women reported being given care by providers who thought that WLWH should not be pregnant or did not know whether WLWH could give birth to HIV-negative children (Ion et al., 2016). Other women reported feeling pressured into terminating their pregnancies (Ion et al. 2016). As a radical manifestation of bias against pregnant WLWH, some work shows that WLWH perceive that healthcare providers believe they should be sterilized, and that some healthcare providers have coerced WLWH into being sterilized (Kendall & Albert, 2015; Strode, Mthembu, & Essack, 2012). Though limited work regarding coerced sterilization had been done in the U.S., these studies show that there are some healthcare providers who would advocate for sterilization for WLWH, which indicates bias towards pregnant WLWH.

While race-based and HIV-based discrimination and disparities in reproductive healthcare and prenatal care are well documented, less work has explored perceptions of abortion-related discrimination in healthcare in general. Overall, the literature shows that women who have had abortions perceive some discrimination and stigmatization from healthcare providers, including healthcare providers who provide abortion services (Astbury-

Ward, Parry, & Carnwell, 2012; Cockrill & Nack, 2013). In interviews with women who had experienced abortion, women perceived slights from anti-abortion healthcare providers when seeking an abortion or disclosing a previous abortion (Cockrill & Nack, 2013). There also appear to be racial differences in perceptions of abortion stigma. Some work demonstrates that White women are more likely to perceive abortion as stigmatizing, compared to Black and Latina women (Bommaraju, Kavanaugh, Hou, & Bessett, 2016). Another survey of women who had sought abortion services found that non-Hispanic White women were more likely to report perceiving stigma from others, including healthcare providers, compared to non-Hispanic Black women (Shellenberg & Tsui, 2012). Thus, there may be racial differences in perceptions of abortion stigma and abortion-related discrimination from healthcare providers. No work to our knowledge has examined discrimination specifically during prenatal care among women who have had previous abortions.

Healthcare Provider Biases and Reproductive Healthcare Provision

While much existing research has explored patients' perceptions of discrimination during prenatal care, less work has explored how healthcare providers' biases influence the healthcare they provide, much less reproductive care and prenatal care. Research among primary care providers demonstrates that providers' biases regarding income lead them to providing disparate domestic violence screening. Providers were more likely to screen for domestic violence with low-income patients, compared to higher income patients. This indicates that providers' biases about patients' life circumstances can lead to differences in care. Moreover, existing work in the area of obesity and prenatal care demonstrates how biases can drive the quality of prenatal care given. Two qualitative studies exploring the role of weight-related bias on healthcare demonstrates that healthcare providers provide different care for individuals who are overweight or obese, compared to those who are not overweight or obese. One study (Gudzune, Beach, Roter, & Cooper, 2013) examined communication

behaviors during patient-provider interactions and found that providers were less likely to build rapport and gather information about overweight or obese patients' lifestyles. Providers were also more likely to provider medical education and counseling about weight loss to these patients (Gudzune et al., 2013). Providers made assumptions about patient lifestyles based on their weight and were more likely to provide medical education and intervention (e.g., blood pressure medication) without assessing patients' current behaviors and habits. Another study specifically examining weight bias and prenatal care found that prenatal care providers asked fewer lifestyle questions, fewer clarifying questions, used fewer concern statements, and gave less lifestyle information to overweight or obese patients (Washington-Cole, Gudzune, Bleich, Cheskin, Bennett, Cooper, & Roter, 2017). These findings are indicative of medical paternalism and surveillance among healthcare providers, based on specific patient characteristics.

Within these findings on obesity, though it is not explicitly stated, they suggest increased paternalistic attitudes on the part of the healthcare providers, along with moral surveillance. First, providers are making the assumption that an obese patient is not currently living a healthy lifestyle and won't adhere to care recommendations. As a result, they immediately provide lifestyle education and intervention without asking questions about the patients' daily exercise and diet habits. By jumping straight to intervention before gathering information or by remaining silent about diet and exercise recommendation, providers are further conveying moral judgments that the patients are unhealthy, irresponsible, and lazy. It is plausible that increased paternalism and moral surveilling could occur for patients with other marginalized identities or statuses.

Research has demonstrated that healthcare providers hold racial biases, and these biases may impact the quality of care they give (see FitzGerald & Hurst, 2017 for a review). For example, one study of medical students, who read vignettes of a cardiac patient and made

treatment recommendations, showed that students were more likely to recommend a procedural option (e.g., surgery) for Black patients than White patients (Williams, Romney, Kano, Wright, Skipper, Getrich… & Zyzanski, 2015). Similar findings regarding more invasive treatment has been demonstrated in reproductive healthcare. Studies show that Black women are subjected to more radical, invasive procedures as treatment for endometriosis, including hysterectomies. Rates of hysterectomy among Black women are increased compared with White women. One study (Bower et al., 2009) found that Black women had nearly four times the odds of having a hysterectomy compared to White women, after controlling for a host of potential confounds, such as BMI, education, and access to medical care. Another study found that Black women were 1.7 times more likely to have a hysterectomy after controlling for similar covariates (Powell et al., 2005).

Racial differences are apparent in other areas of reproductive healthcare. For cancers of the reproductive system, such as ovarian cancer, there are disparities in treatment. Black women were significantly more likely to receive no treatment and less likely to receive chemotherapy for stage IIIC/IV ovarian cancer, compared to White women (Long, Chang, Ziogas, Tewari, Anton-Culver, & Bristow, 2015). Further, differences in care recommendations by race can also be found in family planning, though it seems like socioeconomic status also plays a role. Specific to family planning, among low-income women, healthcare providers were more likely to recommend intrauterine contraception to Black women compared to White women (Dehlendorf, Ruskin, Grumbach, Vittinghoff, Bibbins-Domingo… & Steinhauer, 2010). Other work related to family planning shows that providers are more likely to counsel Black and Hispanic women about contraception, compared to White women (Borrero, Schwarz, Creinin, & Ibrahim, 2009). However, no work to our knowledge demonstrates the role of providers' racial biases on prenatal care recommendations.

A growing body of literature demonstrates that many healthcare providers hold biases against WLWH, and that many hold stigmatizing attitudes toward people living with HIV who wish to become pregnant (MacCarthy, Rasanathan, Ferguson, & Gruskin, 2012). Despite increasingly effective treatment and decreases in mother-to-child transmission of HIV, many providers report that they believe WLWH should not become pregnant (Coll, Potter, Chakhtoura, Alcaide, Cook, & Jones, 2016; Hilliard, Gutin, & Rose, 2014; Kawale, Mindry, Phoya, Jansen, & Hoffman, 2015; Moodley, Cooper, Mantell, & Stern, 2014). In interviews done with healthcare providers in Malawi (Kawale et al., 2015) and Mozambique (Hilliard et al., 2014), common themes included providers' beliefs that WLWH should not become pregnant, and that contraception is the only valid method of family planning. While less work has explicitly demonstrated that clinicians in the U.S. do not believe WLWH should become pregnant, existing research hints that these biases may be expressed more covertly. Healthcare providers reported failing to talk about pregnancy desires and provide less pre-conception counseling with WLWH, instead using conversations about condom use as a stand-in for conversations about reproductive desire (Coll et al., 2016). Particularly among HIV-serodiscordant couples, few receive pre-conception counseling. Rates of pre-conception counseling vary. One study found that only 11.5% of their sample had ever accessed pre-conception counseling (Duff, Kestler, Chamboko, Braschel, Ogilvie, Krusi…& Shannon, 2019), while another found that 43% of their sample received pre-conception counseling (Squires, Hodder, Feinberg, Bridge, Abrams, Storfer… & Aberg, 2011). Providers confirm perceptions that few patients receive pre-conception counseling (Coll et al., 2016). Women also report that they are generally not given any counseling regarding HIV and pregnancy until after they become pregnant (Duff et al., 2019). This work suggests that healthcare providers either assume that WLWH do not want to become pregnant or are expressing unconscious bias that WLWH should not become pregnant.

Providers' ideas that WLWH should not become pregnant in part stem from perceptions that WLWH are unfit to be mothers. With pregnancy comes a chance that WLWH might transmit HIV to their developing fetus, or that someone with HIV might be too ill to care for an infant (Hilliard et al., 2014). Other studies show that WLWH are aware of these providers' beliefs (Cooper et al., 2007; Nobrega et al., 2007), even in the U.S. American WLWH report that they feel more comfortable receiving family planning information from other WLWH, not healthcare providers, due to stigma and perceptions that healthcare providers are not giving them adequate information about pregnancy (Sowell & Misener, 1997). These reports show that WLWH face disparities in family planning and reproductive healthcare, compared to women without HIV.

Historically, medical paternalism has been taken to extremes among both Black women and WLWH with coerced contraception and sterilization, which are still problems facing WLWH worldwide today. There is an abundance of evidence for historical reproductive abuses of Black women in the U.S., often in the form of coerced sterilization or forced contraception (Roberts, 1997). For instance, throughout the 1900's, Black women often received tubal ligations, to which they had not consented, during other surgical procedures (Roberts, 1997). Black women were also forced into receiving contraception, particularly the Depo-Provera injection, as a condition for receiving welfare and other public assistance. WLWH face continuing coerced sterilization worldwide, including in the U.S., though less work documents this horrific abuse here (Essack & Strode, 2012; McCarthy et al., 2012; Open Society Institute, 2011; Strode, Mthembu, & Essack, 2012). One study done by researchers in South Africa showed that of the women interviewed in their sample, all reported feeling a loss of autonomy regarding sterilization; they felt that the healthcare providers made the choices to be sterilized for them, painting sterilization as the only birth control option (Essack & Strode, 2012; Strode et al., 2012). Another study from Namibia

found that of the 230 women in their sample, 40 reported being sterilized without consent (The International Community of Women Living with HIV/AIDS, 2009). In addition to this extreme manifestation, provider attitudes toward pregnant WLWH demonstrate medical paternalism, whereby providers are making decisions regarding WLWH's fertility and pregnancy without giving them the option to engage in discussions about family planning, and by making assumptions that WLWH would like to remain childless. Moreover, these views reflect the constant surveillance of pregnant women (Kukla, 2005), through which WLWH are perceived as a source of harm to a developing fetus. Both paternalism and surveillance are evident in healthcare providers' attitudes toward other groups of women, including women who have had abortions.

Although there are not demonstrated medical disparities between women who have had abortions and those who have not, this does not mean that healthcare providers' biases do not impact the care they give to women who have had abortions. Limited work has examined how providers' attitudes impact care given to patients. Some work suggests that providers' abortion attitudes influence the care they might give. One study found that Republican physicians were more likely to discuss negative mental health outcomes of abortion and to encourage a patient to avoid having an abortion than Democratic physicians (Hersh & Goldenberg, 2016). Further, many providers, including reproductive healthcare providers, hold abortion stigma, which leads them to avoid referring patients to get abortions (Homaifar et al., 2017) or to coerce patients into receiving long-acting reversible contraception as a way to prevent subsequent abortions (Brandi et al., 2018). Interviews with medical students demonstrated stigmatizing attitudes toward individuals who were seeking abortions, and perceived discrimination against women who have sought abortion as normal and ethical (Smith et al., 2018). More recent work shows that, through responses to open-ended questions, medical students expressed judgment for abortion patients (Rivlin, Sedlander, &

Cepin, 2020). This included surprise at abortion patients' lack of remorse or reservation about having an abortion, as well as stigmatizing perceptions that patients could have just used contraception (Rivlin et al., 2020).

Stigma enacted by anti-choice healthcare providers reflects moral surveillance by healthcare providers (Nack, 2008), whereby healthcare providers were perceived to judge patients' behaviors. In one instance, a patient considering abortion due to a large mass on her uterus was subjected to a healthcare provider playing the fetal heart tone repeatedly, although the patient was insistent on abortion due to the mass. The patient felt as if the provider was judging her for her choice and trying to shame her into putting the fetus's life above her own. The judgment from providers toward their patients demonstrates that these providers hold stigmatizing attitudes towards their patients (Cockrill & Nack, 2013). As a result of this moral surveillance, providers may make different recommendations or provide unequal care to individuals who have had a previous abortion.

Theoretical Frameworks

The present study draws on three frameworks: intersectionality theory (Crenshaw, 1989), the Stereotype Content Model (Fiske, Xu, Cuddy, & Glick, 1999), and a model of connections between biases and health disparities (Zestcott, Blair, & Stone, 2016).

Intersectionality Theory

Intersectionality Theory (Crenshaw, 1989; Hill Collins, 1990; 2000) was first coined in the late 1980's as a way to understand the experiences of Black women and the ways that race and gender were viewed as separate entities in anti-discrimination laws. Crenshaw proposed that individuals' social identities intersect to produce unique experiences. For example, Black women have different experiences of womanhood than White women, Latina women, or Asian women due to the combined effect of gender and race. Moreover, complex social processes lead to multiple, interlocking systems of oppression that weave together to create complex outcomes. Various societal constructed realities, such as racism and sexism, impact Black women's lives. Intersectionality theory maintains the independent facets of individuals' selves, such as race, gender, class, or sexual orientation, cannot be separated. As a result of multiple identities, marginalized people experience multiple expressions of oppression, which varies based on the characteristics of the oppressed. Discrimination is not just due to one form of prejudice, but an interaction of multiple prejudices (Hill Collins, 1990).

Intersectionality is a useful framework in better understanding health disparities. Weber (2006) writes that demographic variables that are generally treated as independent in health research are socially constructed, based in context, just like the research process. Furthermore, social inequities based on these variables are interdependent, and health-related oppression due to multiple marginalized identities is multiplicative. Recognizing this, an intersectional approach is necessary to reduce health disparities. The goal of research based in

intersectionality is to consider multiple social structures in order to transform them and reduce prejudice. Ultimately, the goal of research based in intersectionality is social justice (Rogers & Kelly, 2011). The present study uses this lens of intersectionality, as our hypotheses are rooted in the prediction that women's intersecting identities, rather than one unique identity, will be related to the care recommendations they receive. The care recommendations given to patients are not just a result of race, HIV status, or abortion status. Rather, experiences and recommendations are rooted in the combination of one's race, HIV status, and abortion status, and cannot be separated from those identities. Moreover, the ultimate goal of this research is to guide future research regarding prenatal care disparities among women from marginalized groups and reduce disparate pregnancy outcomes for those women. This work uses the guidelines delineated by Rogers and Kelly (2011) for using an intersectional approach in nursing research, here extended to prenatal care research.

Stereotype Content Model

The stereotype content model (SCM; Fiske et al., 1999) was derived to explain how stereotypes of various outgroups are derived, based on perceived characteristics of those groups. This model posits that individuals view outgroups on two different dimensions: warmth and competence. The two dimensions interact to produce four types, which are applied to different outgroups and lead to different types of prejudice. First, for individuals who are perceived as highly competent and high warmth, feelings of admiration and pride are evoked; this would be applied to members of one's in-group and "close allies." Second, individuals who are perceived as high competence, but low warmth, such as Asians, Jewish individuals, and feminists, evoke feelings of envy, jealousy, and competition. Third, those who are viewed as low competence and low warmth, such as welfare recipient and impoverished individuals, elicit feelings of disgust, anger, and resentment (Fiske et al., 2002). The final group include individuals perceived to be high warmth and low competence. This

final group includes groups like women, individuals with disabilities, and elderly people, who are perceived to be warm and caring, but not incompetent. Perceptions of high warmth and low competence lead to paternalistic prejudice and elicit pity from others.

The emotional responses elicited by contact with each group can lead to distinct behaviors towards each group. These behaviors can be classified as either active or passive and harmful or facilitating (Cuddy et al., 2007; Cuddy et al., 2008). For individuals perceived as high warmth and low competence, towards whom paternalistic behaviors might occur, there are two behavioral patterns targeted towards them. *Passive harm* distances individuals through ignoring or neglecting; this might involve denying assistance or resources to an individual. For example, this may occur when providers spend less time with patients (Dovidio & Fisk, 2012), omit health information, or conduct a less thorough examination (McColl et al., 2008). On the other hand, *active facilitation* includes acting in a helpful manner and assisting others. While active facilitation may be positive, it is possible to disadvantage marginalized groups by overhelping. Among individuals viewed as high warmth and low competence, providing too much help reduces an individuals' autonomy and self-efficacy, and disempowers them (Fiske, 2012). Some research on healthcare providers (Dovidio & Fiske, 2012) finds that providers spent more time with patients with disabilities, but often cover less crucial information on preventing health issues and hyperfocus on the patient's disability, conflicting with the actual healthcare needs of the patient. Thus, it is possible that healthcare providers' helpful actions may actually be against the best interest of the patient.

Overhelping patients or neglecting to provide pertinent care is related to paternalism. As previously noted, stereotypes of certain groups can give rise to paternalistic prejudice (Fiske et al., 2002), which in turn leads to discrimination (Cuddy et al., 2007). Research on warmth and competence demonstrate that perceptions of high warmth and low competence

lead individuals to feel pity towards others, and actively behave in ways that might help the high warmth-low competence target. This can often come in the form of dismissiveness, such as dismissing individuals' concerns, as well as patronizing interactions and poor medical care provided. One study demonstrated that elderly individuals were dismissed and given poor medical care as a function of the pity elicited by paternalistic prejudice (Pasupathi & Lockenhoff, 2002). Women are also subjected to paternalistic treatment, and some work suggests that Black individuals are also likely to experience paternalism (Jackman, 1994). As such, it is plausible that the paternalistic prejudices that result from viewing certain women as high warmth and low competence. Stereotypes of women, particularly Black women, women who are living with HIV, and women who have had abortions, as less competent to make medical decisions will lead to different recommendations about abortion.

Connecting Biases to Health Disparities

Finally, the current study will use a general model of the connections between providers' implicit bias and health disparities (Figure 1; Zestcott, Blair, & Stone, 2016). This model stems from a review of research regarding providers' implicit biases and their impact on health disparities, which spans numerous areas of healthcare and is not limited to prenatal care (Zestcott et al., 2016). This model suggests two paths by which providers' biases can produce health disparities. Path A demonstrates provider bias leads to differences in decisions about patient care, then to health disparities. Path B demonstrates that provider bias affects communication with patients; communication and trust influence patient treatment adherence, which leads to health disparities. Our study will primarily examine Path A, as this study connects provider biases to patient care. Specifically, we will examine how healthcare professional students' biases impact judgments of abortion recommendations.

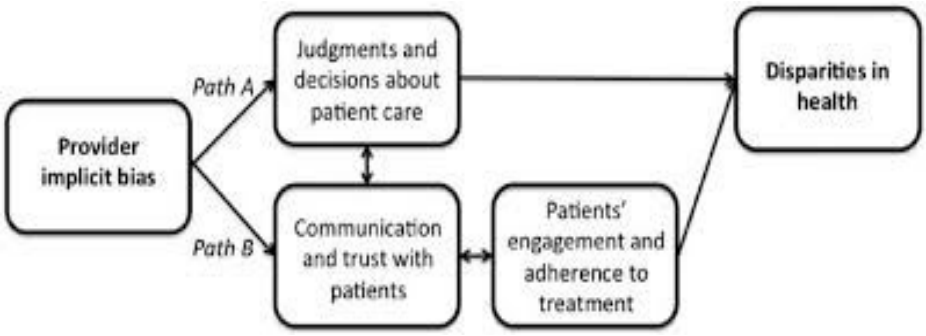

Figure 1. Two paths linking provider implicit bias to health disparities (Zestcott, Blair, & Stone, 2016).

The Use of Healthcare Professional Students as Participants

Existing research has focused on practicing healthcare providers, but limited research has examined care recommendations of healthcare professional trainees. Though not licensed, practicing providers, students are an important population to examine. Healthcare education programs are the sites where lay individuals become healthcare providers, learning not just facts and figures about medical ailments and treatment, but about the culture of healthcare provision. Healthcare education sets the stage for future practice, and as such it is important to examine students' biases and assumptions before they become full-time providers. Doing so can help to better combat biases among these students, and produce more sensitive, culturally competent health professionals. Moreover, findings from research conducted with healthcare professional students can be used to improve the quality of their education, which will ultimately lead to better trained professionals. Findings from the proposed study will be used to drive the inclusion of bias awareness and reduction training in healthcare professionals' education programs.

Purpose and Hypotheses

Surveillance statistics in the U.S. demonstrate that many groups of marginalized women, including Black women, WLWH, and women who have had an abortion may face disparate pregnancy-related treatment. One factor underlying these disparities is increased stigma and discrimination in the healthcare system faced by these women. Although some existing work has focused on women's perceptions of healthcare provider bias during prenatal care, limited work has focused on the healthcare providers. In the limited extant research, healthcare providers weight bias has been shown to impact providers' perceptions of overweight or obese patients, and ultimately influences the care provided to overweight or obese pregnant women (Washington-Cole et al., 2017). Work focusing on patient experiences shows that Black women (Attanasio & Kozhimannil, 2015; Mazul et al., 2017; Salm Ward et al., 2013), WLWH (Blake et al., 2008; Greene et al., 2015; Ion et al., 2016), and women who seek or have had abortions (Astbury-Ward et al., 2012; Cockrill & Nack, 2013) experience discrimination from healthcare providers. Less work has focused on healthcare providers' biases and how these biases impact the care given to Black women, WLWH, and women who have had abortions. As such, it is imperative to begin to determine how providers' biases, particularly those related to race, HIV status, and abortion status, impact prioritization of specific care items.

In response to the need to determine the role of provider biases on their prioritization of care items, the current study aimed to understand how healthcare providers-in-training prioritize various prenatal care items based on a patient's race, HIV status, and abortion status. Findings fill a substantial gap in the literature regarding healthcare professional student and healthcare provider biases and will be used in medical training or other interventions to decrease biases among providers. As a result, more equitable care will be provided, and negative pregnancy-related outcomes may decrease among women across

marginalized groups. In an online experiment, healthcare professional students read a patient vignette and prioritized two sets of prenatal care items. For this experiment, our hypotheses were:

Hypotheses for Effects of Implicit Biases with Patient Condition

H1: The effect of racial bias on care item prioritization will vary by patient race, such that increased racial bias will be related to different prioritization for Black women compared to White women.

H2: The effect of HIV-related bias on care item prioritization will vary by patient HIV status, such that increased HIV-related bias will be related to different prioritization for HIV+ women compared to HIV- women.

H3: The effect of abortion-related bias on care item prioritization will vary by patient abortion status, such that increased abortion-related bias will be related to different prioritization for women who have had abortions compared to women who have not.

Hypotheses for Interactions of Patient Conditions

H4: There will be a significant interaction of patient race and HIV status, such that Black women who are living with HIV will receive different prioritization of items than other women.

H5: There will be a significant interaction of patient race and abortion, such that Black women who have had an abortion will receive different prioritization of items than other women.

H6: There will be a significant interaction of patient HIV status and abortion, such that WLWH who have not had an abortion will receive different prioritization of items than other women.

H7: There will be a significant three-way interaction of patient race, HIV status, and abortion. In this interaction, women who are Black, living with HIV, who have had an abortion will receive different prioritization of items than other women.

Method

Sample

The final sample included 111 healthcare professional students from multiple healthcare professional programs. All students were currently enrolled in their program, over 18 years of age, and able to read and respond in English. All participants were in their clinical years. There were no restrictions based on projected specialization. Participants received a $10 Amazon e-gift card for their time and effort. The sample included more women (68.50%) than men (24.30%), with 1% reporting a nonbinary identity and the rest not reporting their gender. The mean age was 26.21 years (SD = 2.06). The sample was majority White (52.3%), with only 4.50% Black, 33.30% Asian, 1% Native American/Indigenous/Alaskan Native, and 2% multi-racial. A large majority (82.90%) identified as being straight, with 7.20% bisexual, 2.70% gay or lesbian, and 1.80% being unsure. A majority of the sample (59.50%) reported being in a romantic relationship, with an average relationship length of 49.92 months (SD = 31.39 months).

We also asked questions about participants programs and training. Most students (41.40%) did not report which school they attended. Of the students who reported their school, 58.80% attended the University of Michigan School of Medicine and 11.80% attended the University of Virginia School of Medicine. About 8.80% each attended the South University (Richmond) PA program and the Shenandoah University PA program. Virginia Commonwealth University School of Medicine students made up 5.90% of the data, while 2.90% each were from the University of South Alabama School of Medicine and the University of North Carolina School of Medicine. The majority of students who completed the study were in medical school (86.50%), then PA (7.20%) and (1%) NP programs. Of medical students, 43.70% were M3 and 56.30%% were M4. Of PA students, 37.50% were in their second year and 62.50% were in their third year. For NP students, all were in their second year. Most students had completed an OB/GYN rotation (80.20%) and reported

having some (73.90%) or a lot (9.00%) of experience with prenatal care. Roughly 73.00% reported they were not considering obstetrics or gynecology for their area of specialization, while 21.60% reported that they were considering it.

Materials

All materials can be found in the Appendices of this document.

Vignettes about patient. Participants viewed one of eight possible vignettes of a pregnant patient who has come in for prenatal care. The vignettes described the patient's name, age, week of gestation, and other physical characteristics, which were the same throughout, except race, HIV status, and abortion status. These characteristics were randomized for each participant. Race was depicted through a picture of the patient, while HIV status and abortion status will be written into the vignette. Participants had two minutes to view the patient picture, read through the vignette, and respond to the outcome measure. See Appendix D for the vignettes.

Prenatal Care Item Prioritization (based on Sabin & Greenwald, 2012; van Ryn, Burgess, Malat, & Griffin, 2006). The outcome measure assessed students' prioritization of two types of different prenatal care items. While under time pressure, and after being told they only have fifteen minutes with this patient, students viewed two lists. The first list included nine items that they will order for the patient, which do not require as much discussion with the patient (except for informing the patient it will be done and getting consent, if necessary), such as routine bloodwork. The second list included eleven items that a provider might discuss more intensively with a patient, such as options counseling about abortion or domestic violence.

For the list regarding items to order for the patient, participants chose three of the nine items to order for the patient. The items were subsequently coded as '0' (Did not choose) and '1' (Chose). These items were not ranked. For the "to discuss" list, participants ranked the

items in the order in which they will address them, from first to last, knowing they only have fifteen minutes with the patient. That is, for the list regarding items to discuss, they will rank all eleven items in order from what they will discuss first (1) to what they would discuss last (11).

Due to the nature of the selected analyses, we only made specific comparisons between some of the items, including between discussions of abortion, domestic violence, and drug and alcohol use, as well as between ordering a drug screen and screening for sexually transmitted infections. Items have been adapted from a list of specific items concordant with a first prenatal care visit, based on American College of Obstetricians and Gynecologists (ACOG) recommendations.

Evaluative Priming Task (Fazio et al., 1995). An evaluative priming task assessed individuals' implicit biases regarding race, HIV, and abortion. In this task, individuals viewed a word related to race, HIV status, and abortion, followed by a subsequent target word. The target word has a positive or negative target valence (e.g., "magnificent" or "disgusting"). Individuals rated the target as positive or negative. It is expected that the speed of evaluating the target as positive or negative will be quicker when the attitudes toward the racial, HIV-related, and abortion-related primes and the target word match. For example, if the word "HIV" is presented, immediately followed by the word "terrible," the speed at which a participant evaluates the word "terrible" will be quicker if that individual has negative attitudes about HIV and people living with HIV, and slower if the person has positive attitudes about HIV and people living with HIV.

Scores of implicit biases were obtained by calculating two priming scores and subtracting them. First, the mean reaction time for positive target words paired with positive primes was subtracted from the mean reaction time for positive target words paired with a negative prime. Higher scores here indicate more positive attitudes toward the primes. Then,

the mean reaction time for negative target words paired with positive primes was subtracted from the mean reaction time for negative target words paired with negative primes. Higher scores indicate more negative attitudes toward the positive prime. The latter priming score was then subtracted from the first priming score to obtain a priming index score. On this index score, higher scores indicate more positive attitudes toward positive primes.

Control measures. We included numerous measures as potential control variables in this study:

- *The Ambivalent Sexism Inventory* (ASI; Glick & Fiske, 1996): This 22-item inventory measures both hostile and benevolent sexism. Hostile sexism refers to antagonistic feelings toward women and a desire to punish women for violating traditional gender roles. Benevolent sexism is more subtle, treating women as "the weaker sex" who need to be protected, and rewards women for adhering to traditional gender roles. Items on both subscales employ a six-point Likert scale, ranging from 0 (Disagree Strongly) to 5 (Agree Strongly). Scores for each separate sexism subscale are totaled, with higher scores indicating greater levels of each type of sexism. Cronbach's alpha for the hostile sexism subscale has been found to be good, ranging from .80 to .92 across various samples (Glick & Fiske, 1996), while alphas for the benevolent sexism subscale range from acceptable at .73 to good at .85 (Glick & Fiske, 1996). In our sample, reliability for the hostile sexism scale was good at .82, while the reliability for the benevolent sexism subscale was acceptable at .76.
- *The Symbolic Racism Scale* (Henry & Sears, 2002): This measure has eight items which assess explicit racism, specifically against Black individuals. Items employ a 1 (Strongly Agree) through 4 (Strongly Disagree) scale. Items can be totaled, with lower scores indicating increased bias. This measure has mixed reliability,

which may be due to race, ranging from poor reliability at an alpha of .42 among Latinos and .55 among Black individuals in one sample, to good at an alpha of.79 among White individuals and .85 among Black individuals in another sample (Henry & Sears, 2002). In our sample, reliability was good at .84.

- *The Stigmatizing Attitudes toward People living with HIV/AIDS Scale* (Beaulieu, Adrien, Potvin, & Dassa, 2014): This measure uses 27 items to measure stigma held against individuals living with HIV/AIDS. All items use a scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). Lower total scores indicate greater stigma toward someone living with HIV/AIDS. Reliability of the total scale was good at $\alpha = .88$ among men, women, and all French speakers, and at $\alpha = .90$ among all English speakers (Beaulieu et al., 2014). In our sample, reliability was good at .84.
- *The Stigmatizing Attitudes, Beliefs, and Actions Scale* (SABAS; Shellenberg et al., 2014): This 18-item measure assesses individuals' stigmatizing attitudes toward individuals who have sought abortion and includes three subscales congruent with the components of stigmatizing attitudes, beliefs, and actions: the negative stereotyping subscale, the exclusion and discrimination subscale, and the fear of contagion subscale. Items use a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). An example item would be "A woman who has an abortion is a bad mother." Individual subscales were not examined independently; all items were totaled to get a complete stigma score. Higher scores indicate increased stigma. The subscales and total measure demonstrate good reliability. Alphas have been found at .85 for the stereotyping subscale and .80 for the exclusion subscale and fear of contagion subscale. Alpha for the overall measure was .90 (Shellenberg et al., 2014). In our sample, alpha for the

total measure was good at .86, while the reliabilities for the stereotyping subscale, exclusion subscale, and fear of contagion subscale were .86, .60, and .80 respectively. The reliabilities for the stereotyping and fear of contagion subscales were good, while the reliability for the exclusion subscale was inadequate. This is likely due to one single item which read, "A woman who has an abortion should be treated the same as everyone else." The responses were overwhelmingly "Strongly Agree," which may not be consistent with responses on other items on this subscale.

- *The Attitudes About Abortion-Providing Physicians Scale* (Martin, Seewald, Johnson, & Harris, 2020), which uses 20 items to measure stigmatizing attitudes toward abortion providers. The first 13 items comprise the "Opinions" subscale and use a five-point Likert-type scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). For this subscale, lower scores indicate more negative attitudes toward abortion providers. Four of the remaining items comprise the "Motivations" subscale, and the last three items make up the "Competence" subscale. The last two subscales ask respondents to compare abortion providers with other doctors, and use a three-point scale, with 0 indicating "more," 1 indicating "equally," and 2 indicating "less." Scores are averaged, with average scores less than 1 indicating negative attitudes toward abortion providers. Reliabilities were good for all subscales. For the "Opinions" subscale, alpha was .95. For the "Motivations" subscale, it was .81, and for the "Competence" subscale, alpha was .80. For the overall measure, alpha was .94 (Martin et al., 2020). In our sample, the reliability for the overall measure was .88, while the alphas for the "Opinion" subscale, "Motivations" subscale, and "Competence" subscale were .93, .78, and .61, respectively. While the "Opinion" and

"Motivation" subscales had excellent and adequate agreement, the "Competence" subscale had inadequate reliability.

- *The Social Dominance Orientation Inventory* (Pratto, Sidanius, Stallworth, & Malle, 1994): This measure used 16 items to assess individuals' beliefs about social hierarchy. Items use a seven-point Likert-type scale ranging from 1 (Very Negative) to 7 (Very Positive). Items are totaled with higher scores indicating more positive feelings toward social hierarchies. Reliability for this measure has been demonstrated to be good, ranging from .80 to .85 across samples (Pratto et al., 1994). In our sample, reliability for the total measure was excellent at .89.

Demographics. Participants completed a series of demographics items that were used to describe the sample. This included, but was not limited to, gender, race, age, year in medical school, experience with obstetrics and the provision of prenatal care, and possible area of specialization, political affiliation, and religiosity.

Procedure and Study Design

Recruitment and Screening

Following IRB approval, we sent recruitment emails to individuals who could reach third- and fourth-year medical students from the medical schools of Virginia Commonwealth University (VCU), University of Virginia (UVA), and Eastern Virginia Medical School (EVMS). We also recruited Nurse Practitioner (NP) students from the VCU and UVA nursing schools, as well as physician assistant (PA) students from the EVMS physician assistant program, the Shenandoah University (SU) physician assistant program, and the James Madison University (JMU) physician assistant program. Students were recruited who are in their clinical years, who are likely to have had more patient interactions and more chances to make treatment decisions. Further, to recruit VCU medical and NP students, we posted flyers on the medical (MCV) campus, Monroe Park campus, as well as in locations

close to both campuses frequented by medical and nursing students (e.g., restaurants, coffee shops). We also used connections at the VCU medical and nursing schools for help recruiting students. Both the flyers and the emails included a link to the study. To recruit at UVA, EVMS, SU, and JMU we sent emails to student groups and organization with a link to the study, with the approval of supervisors at each of the sites.

After our initial recruitment was slow, we expanded recruitment beyond schools in Virginia. Consistent with the IRB recruitment protocol, we opened participation up to any medical, NP, or PA student who meets our inclusion criteria, regardless of location in the United States. Other programs were contacted by emails, generally to student societies such as student government organizations and offices of student affairs or student education. Other locations to which emails were sent included: University of Maryland, Georgetown University, University of North Carolina, Duke University, Johns Hopkins University, the Medical University of South Carolina, University of Florida, Morehouse School of Medicine, University of South Carolina, University of Alabama, University of Alabama – Birmingham, Tulane University, Wake Forest University, George Washington University. University of Pennsylvania, Pennsylvania State University, Stanford University, University of California – San Francisco, University of Chicago, and University of Michigan.

Regardless of school or manner of recruitment, potential participants followed a link to the study, where they first completed screening items to ensure they were eligible to participate. These items ensured they are currently enrolled in their respective programs, are over 18, in their clinical years, and can read and respond in English. If participants did not meet eligibility requirements, they were directed to the end of the study. If participants met eligibility requirements, they were directed to the consent form. After indicating their consent to participate, participants continued to the study.

Study Tasks

The first task that participants completed was the timed vignette-based ranking task. They viewed both the patient vignette and completed the outcome measure. In this task, time pressure was used to activate unconscious stereotypes, as has been demonstrated in previous research regarding biases and clinical decision-making (Stepanikova, 2012). First, participants were given directions outlining that they are coming from a previous patient and have two minutes to view the chart for their next patient and plan for what to prioritize in their visit with this patient. They were also told that they only have fifteen minutes with this patient. After moving on to the next screen, a timer appeared at the top of the screen, along with the patient picture and vignette. The current study employed a 2 (race: Black, White) x 2 (HIV status: living with HIV, not living with HIV) x 2 (abortion status: has had an abortion, has not had an abortion) design. Patient race, HIV status, and abortion status were randomized, and participants were randomly assigned to view one of eight possible conditions. A picture of the patient was used to manipulate patient race, while patient HIV status and abortions status were noted in the written vignette. See Appendix A for the vignette and pictures.

After reading the vignette, the patient moved on to outcome measure, with the timer still counting down. Participants read through the two lists of items, one for items they will order (e.g., test for sexually transmitted infections; complete blood count) and one for items they will discuss with their patient (e.g., discuss options like abortion; screen for intimate partner violence). Directions prior to each list reminded them that they only have fifteen minutes for this patient's visit.

Participants first read through the list of "to order" items and chose three out of nine items. These items were ultimately coded '0' (did not choose) and '1' (chose). Participants then moved on to the "to discuss" list, and rank ordered the items that they will discuss first to what they will order or discuss last. If the timer ran out prior to completion, participants

were advanced to the rest of the study. In the remainder of the study, participants completed the evaluative priming task, followed by the additional measures and demographics. Finally, participants were given information about the study, researcher contact information, and completed a contact information sheet separate from their data so they could be granted their incentive as a $10 Amazon gift card within 72 hours.

Results

Data Preparation

Data was prepared in SPSS 27 (IBM, 2020). Three hundred forty-four individuals completed the first part of the study, which included the screening survey and experimental manipulations. One hundred twenty-three individuals were screened out; most were screened out due to using a mobile phone instead of the support tablet or laptop (n = 96), while 13 individuals entered their birth year wrong or not at all. Another 14 were screened out because they had not yet reached their clinical years.

The data was also screened for incomplete data and infeasible patterns of response (i.e., lazy responders). Of the 221 individuals who made it through the screening process, 95 were excluded from analyses due to substantial missing data. Most of the individuals excluded for this reason did not complete the experimental measures at all or did not complete the additional measures in the third part of the study. No lazy responders were identified. From the 126 individuals who completed the entire survey, 15 people did not complete the "to discuss" items, possibly due to the time constraints. Thus, these individuals could not be included, leaving us with a sample of 111 individuals. We should also note that due to technical errors or participant decisions, only 76 of the 111 individuals included in the analyzed data completed the evaluative priming (EP) task in Inquisit. It is unclear why these individuals did not complete the EP task; it is possible that the Inquisit software failed to work on their computers, did not record their data, or that participants figured out how to exit the EP task and move on to the final part of the survey.

Tests of skewness and kurtosis of our variables were also conducted, with standard cutoffs of ±2.00 used as indications of highly skewed or highly kurtotic data. Skewness and kurtosis were not a concern for our primary outcome variables, with all values falling below the ±2.00 cutoff value (George & Mallery, 2010). Thus, the outcome data were left alone, and

no transformations were applied. However, some skewness and kurtosis were detected for our additional measures. The Stigmatizing Attitudes Beliefs and Actions subscales, which assess facets of abortion stigma, all had skewness and kurtosis scores exceeding ±2.00; for the total measure, skewness was 3.66 and kurtosis was 19.96, for the contagion subscale, the skewness was 6.391 and kurtosis was 43.611, for the negative stereotyping scale, skewness was 3.26 and kurtosis was 15.95, and for the exclusion and discrimination subscale skewness was 2.08 and kurtosis was 13.725. However, for these subscales, the range of possible scores is small, increasing the chances for both skewness and kurtosis. The competence subscale scores on the Attitudes toward Abortion Providing Physicians Scale were skewed (-2.68) and kurtotic (7.80), too. Two indices of racism, the Symbolic Racism scale and the implicit Race index from the EP task were both skewed and kurtotic, too. The Symbolic Racism scale had skewness of 2.21 and kurtosis of 6.86, while the Race index had a skewness of 6.30 and kurtosis of 49.34. Two variables were found to be kurtotic only. The measure assessing stigmatizing attitudes towards people living with HIV was kurtotic at 5.47, indicating leptokurtic data with many total scores in the same small range. Similarly, the Social Dominance Orientation measure was also kurtotic at 3.77, also indicating a clustering of scores across a small range.

All measures on which values were skewed or kurtotic were measures related to stigma and explicit bias. As such, these measures reflect individuals' explicit biases, or potentially social desirability in responding. This is something that we would want to be captured in our data and applying any transformation to these data would obscure the measurement of either explicit biases or socially desirable responding surrounding bias and stigma. Moreover, almost all measures dealt with health-related knowledge or perspectives. It makes sense that healthcare professional students would have increased knowledge about HIV and abortion and would thus explicitly endorse fewer stigmatizing attitudes; further, it

makes sense that healthcare professional students would view abortion providers as competent professionals. We did apply transformations to our variables to see whether or not this reduces skewness and kurtosis and whether transformed variables change our results. Square root transformations reduced the skewness and kurtosis to normal levels among all variables except for the Race EP scores, SABAS scores, and attitudes toward abortion providing physicians competence subscale. These measures were then subject to both log and inverse transformations. Log transformations brought the Race ER value closer to normal, but the SABAS and AAPPS scores remained highly kurtotic. Inverse transformations did not do much to return the SABAS and AAPPS scores back to normal. Further, none of the transformed values significantly correlated with our outcome variables. As such, no transformations were applied to any of these variables for our final analyses.

Further, data was assessed for outliers. As the primary outcome measures relied on ranking, no outliers can be determined from this data. One score on the Race index of the EP task was determined to be an outlier, as was one score on the HIV index. However, it is possible that for both cases, extreme scores could indicate extreme prejudice. For both individuals, their scores on the other EP indices fell within a normal range, suggesting that extreme bias is possible. Finally, to determine whether the data are missing at random or not, Little's MCAR test was used. All data was determined to be missing at random ($\chi^2 = 317.80$, $p = .587$). As such, no method for dealing with the missing data (i.e., removal from the dataset, imputation, expectation maximization) was used.

Correlations

Pearson's product moment correlations were conducted to determine relationships among our variables of interest and potential control variables. For correlations with demographic variables, no demographic variables of interest were significantly related to our outcome variables. Table 1 includes correlations of our outcome variables with participant

demographics. Of correlations with additional measures, there were few significant correlations with the rankings of our outcomes measure. Hostile sexism was significantly related to rankings of the outcome related to discussing abortion with the patient, $r = .21$, $p = .03$, such that increased hostile sexism was related to lower rankings of discussing abortion. HIV-related stigma was significantly correlated with rankings for discussing domestic violence with the patient, $r = .23$, $p = .019$. Increased HIV stigma was related to lower rankings of discussing domestic violence with the patient. Finally, the opinion subscale of the Attitudes toward Abortion Providing Physicians Scale was significantly correlated with rankings for two outcome items: discussion of abortion, $r = -.22$, $p = .029$, and discussion of tobacco use, $r = .26$, $p = .008$. Having more positive opinions about abortion providers was related to higher rankings of discussing abortion, whereas more positive opinions about abortion providers was related to lower rankings of discussing tobacco use. There were also a number of significant correlations among the additional measures. Please see Table 2 for correlations of our outcomes variables with additional measures added for purposes of control.

Testing H1 – H3: Univariate Kruskal-Wallis Tests and Binary Logistic Regressions

After the data have been screened, we conducted a series of univariate Kruskal Wallis (UKW) tests, one for each of the "To Discuss" outcome items, to test our predictions from H1, H2, and H3. In an UKW test, scores are assigned a rank, and mean rank orders are calculated. Based on mean rank comparisons, we can determine if there are differences among care prioritization based on bias and patient characteristics. Dunn's test was used to compare groups post-hoc. In each analysis for H1 through H3, we will only be examining how one specific bias interacts with its corresponding patient characteristic; for example, in H1 we will only be exploring how racial bias interacts with patient race to change ranking of care. We will not be examining how the other biases are related to patient characteristics to

which they do not correspond. Figures 2, 3, and 4 visually depict these effects of bias and patient status for the mean rating of each discussion item for each hypothesis, respectively.

In order to adequately demonstrate an interaction with biases in these analyses and make scores more interpretable, scores from each EP task were coded into categorical variables. We chose to use tertiles, wherein low scores were scores at or below the 33rd percentile, moderate scores were above the 33rd percentile, but at or below the 66th percentile, and high scores were above the 66th percentile. In correspondent scores, low scores were at or below -26.361 for the racism task scores, 9.694 for HIV stigma task scores, and at or below .583 for abortion stigma task scores. Moderate scores were between -26.362 and 126.889 for the racism task scores, between 9.695 and 169.667 for HIV stigma scores, and between .584 and 97.750 for abortion stigma scores. High scores corresponded to values over 126.890 for racism task scores, over 169.668 for HIV stigma scores, and over 97.751 for abortion stigma scores. Tertile were chosen over a median split for a more nuanced view of our implicit bias data. Further, we selected tertiles over quartiles due the number of people in each group; we wanted to increase power by having as many people as possible in each group.

We predicted that implicit biases would interact with patient characteristics to lead to differences in the mean rank for each care recommendations. First, in line with H1, we predicted that the effect of racial bias on care prioritization will vary by patient race, such that increased racial bias will be related to different mean rankings of care items for Black women than for White women. Specifically, increased racial bias will be related to different mean rankings of abortion, domestic violence, and drug and alcohol discussions between Black and White women, as well as different mean rankings of drug, alcohol, and STI screening.

Our hypotheses were not confirmed. For all discussion outcomes, the interactions of patient race and racism were not significant ($p > .05$ for all outcomes). Specifically, for discussing abortion, $p = .582$, for screening for drug use, $p = .395$, for screening for alcohol

use, $p = .309$, for screening for tobacco use, $p = .191$, and for screening for domestic violence, $p = .828$. Ultimately, the mean ranks did not significantly differ for White and Black patients across all levels of racism.

For the "To Do" items, as participants had only selected three and had not ranked the items, items were coded as either '0' = did not choose or '1' = did choose. As such, multiple binary logistic regressions were conducted for each of our outcome variables. We first examined the interaction of race and racism on the likelihood of choosing to screen for sexually transmitted infections (STIs). The overall model was not significant, $\chi^2(1) = .216$, df = 1, $p = .642$. Nagelkerke's pseudo-R^2 was .005, suggesting that only .500% of the total variance in the likelihood of choosing to screen for STIs can be accounted for by this model. Ultimately, our model did not predict the likelihood of screening for STIs based on interactions of race and racism.

Second, we explored how the interaction of race and racism impacted the likelihood of choosing to screen the patient's urine or blood for drugs. The overall model was not significant, $\chi^2(1) = 1.191$, df = 1, $p = .275$. Nagelkerke's pseudo-R^2 was .037, suggesting that only 3.700% of the total variance in the likelihood of choosing to screen urine or blood for drugs can be accounted for by this model. Ultimately, results show that we cannot predict the likelihood of screening for drugs based on interactions of race and racism.

Finally, we examined the interaction of race and racism on the likelihood of screening the patient's urine and blood for the presence of alcohol. The overall model was not significant, $\chi^2(1) = .696$, df = 1, $p = .404$. Nagelkerke's pseudo-R^2 was .070, suggesting that only 7.000% of the total variance in the likelihood of choosing to screen for STIs can be accounted for by this model. Results suggest that our model did not predict the likelihood of screening for alcohol based on interactions of race and racism.

Second, in line with H2, we predicted that the effect of HIV-related bias on care prioritization will vary by patient HIV status, such that increased HIV-related bias will be related to different mean rankings of care items for WLWH than for women without HIV. Again, increased HIV-related bias will be related to different mean rankings of abortion, domestic violence, and drug and alcohol discussions between WLWH and women without HIV women, in addition to differing mean rankings of drug, alcohol, and STI screening.

Our prediction was partially confirmed. There were no significant differences between HIV- and HIV+ patients across all levels of HIV stigma for discussion abortion (p = .138), screening for alcohol use (p = .303), screening for tobacco use (p = .594), and screening for DV (p = .411). However, we did find a significant interaction of patient HIV status and HIV stigma for screening for drug use, p = .016. Examination of pairwise comparisons revealed significant differences between multiple pairs. First, significant differences were found between cases where students with high stigma saw an HIV- patient and cases where students with low stigma saw an HIV+ patient, p = .011, such that when student stigma was high, patients living without HIV (mean rank = 20.86) had screening for drug use ranked higher than patients living with HIV (mean rank = 43.00); that is, students with high stigma ranked screening for drug use higher for patients (closer to 1) without HIV than for patients living with HIV. Second, there were significant difference between responses from students with high stigma who saw an HIV- patient and students at moderate stigma who saw an HIV- patient, p = .004. When the patient was HIV- but students' stigma was high (mean rank = 20.86), screening for drug use was ranked higher (closer to 1) than when students stigma was moderate (mean rank = 44.97). Finally, there were significant differences between the HIV- patient when students' stigma was high and the HIV+ patient when students' stigma was moderate, p = .004. When the patient was HIV- but stigma was

high (mean rank = 20.86), screening for drug use was ranked higher (closer to 1) than when the patient was HIV+ but stigma was moderate (mean rank = 48.50).

Again, for the "To Do" items, we conducted multiple binary logistic regressions for each of our outcome variables. We first examined the interaction of HIV and HIV stigma on the likelihood of choosing to screen for STIs. The overall model was not significant, $\chi^2(1) = .832$, df = 1, $p = .362$. Nagelkerke's pseudo-R^2 was .019, suggesting that only 1.900% of the total variance in the likelihood of choosing to screen for STIs can be accounted for by this model. Our model did not predict the likelihood of screening for STIs based on HIV and HIV stigma.

Second, we explored how the interaction of HIV and HIV stigma impacted the likelihood of choosing to screen the patient's urine or blood for drugs. The overall model was not significant, $\chi^2(1) = .985$, df = 1, $p = .321$. Nagelkerke's pseudo-R^2 was .034, suggesting that only 3.400% of the total variance in the likelihood of choosing to screen urine or blood for drugs can be accounted for by this model. Ultimately, we cannot predict the likelihood of screening for drugs based on interactions of HIV and HIV stigma.

We also examined the interaction of HIV and HIV stigma on the likelihood of screening the patient's urine and blood for the presence of alcohol. The overall model approached, but was not significant, $\chi^2(1) = 3.571$, df = 1, $p = .059$. Nagelkerke's pseudo-R^2 was .352, suggesting that 35.200% of the total variance in the likelihood of choosing to screen for STIs can be accounted for by this model. Results suggest that our model did not adequately predict the likelihood of screening for alcohol based on interactions of HIV and HIV stigma.

Finally, in line with H3, we predicted that the effect of abortion-related bias on care prioritization will vary by patient abortion status, such that increased abortion-related bias will be related to different mean rankings of care items for women who have had an abortion,

compared to women who have not had an abortion. Specifically, increased abortion bias will be related to different mean rankings of abortion, domestic violence, and drug and alcohol discussions between women who have had abortions and women who have not. Further, there will be different mean rankings of drug, alcohol, and STI screening between those two groups, based on bias.

Our prediction was partially confirmed. The interaction of patient abortion status and student abortion stigma was not significant for discussing abortion (p = .599), screening for drug use (p = .418), screening for alcohol use (p = .100), and screening for DV (p = .665). However, the interaction was significant for screening for tobacco use, p = .037. Examination of the pairwise comparisons showed significant differences between multiple groups. For patients who had not had an abortion, there were differences when student stigma was moderate versus low; when student stigma was low, screening for tobacco use was ranked lower for patients who had not had an abortion (closer to 12; mean rank = 53.92) than when student stigma was moderate (mean rank = 31.79). There were also differences between patients who had had an abortion versus those who had not when student stigma was low, p = .013. For patients who had had an abortion, at low levels of student stigma, screening for tobacco use was ranked more highly (closer to 1; mean rank = 32.18) than for patients who had not had an abortion (mean rank = 53.92). Finally, there was a significant difference between patients who had had an abortion at high student stigma compared to patients who had not had an abortion at low student stigma, p = .026. When the patient had not had an abortion and student stigma was low, screening for tobacco use was ranked lower (closer to 12; mean rank = 53.92) compared to when the patient had had an abortion and stigma was high (mean rank = 32.56).

Like with H1 and H2 analyses, multiple binary logistic regressions were conducted. We first examined the interaction of abortion status and abortion stigma on the likelihood of

choosing to screen for sexually transmitted infections (STIs). The overall model was not significant, $\chi^2(1) = .041$, df = 1, $p = .839$. Nagelkerke's pseudo-R^2 was .001, suggesting that only .100% of the total variance in the likelihood of choosing to screen for STIs can be accounted for by this model. Ultimately, our model did not predict the likelihood of screening for STIs based on interactions of abortion status and abortion stigma.

Second, we explored how the interaction of abortion status and abortion stigma impacted the likelihood of choosing to screen the patient's urine or blood for drugs. The overall model was not significant, $\chi^2(1) = 1.066$, df = 1, $p = .302$. Nagelkerke's pseudo-R^2 was .033, suggesting that only 3.300% of the total variance in the likelihood of choosing to screen urine or blood for drugs can be accounted for by this model. Ultimately, results show that we cannot predict the likelihood of screening for drugs based on interactions of abortion status and abortion stigma.

We finally examined the interaction of abortion status and abortion stigma on the likelihood of screening the patient's urine and blood for the presence of alcohol. The overall model was not significant, $\chi^2(1) = .193$, df = 1, $p = .660$. Nagelkerke's pseudo-R^2 was .019, suggesting that only 1.900% of the total variance in the likelihood of choosing to screen for STIs can be accounted for by this model. Results suggest that our model did not predict the likelihood of screening for alcohol based on interactions of abortion status and abortion stigma.

Testing H4 – H7: Ordinal and Binary Logistic Regressions

We used a series of ordinal regressions to explore the interactions of our vignette conditions, proposed in H4-H7. Ordinal regressions were used for our "To Discuss" items, as the proposed outcome was ordinal in nature. As we had multiple outcome items proposed, multiple ordinal regressions were conducted for each hypothesis. For the "To Do" items, as participants had only selected three and had not ranked the items, multiple binary logistic

regressions were conducted for each of our outcome variables, similar to H1 – H3. Tables 3 through 13 contain results for H4 – H7.

H4: The Interactions of Patient Race and HIV Status

First, based on H4, we expected that there will be an interaction of patient race and HIV status, with Black WLWH getting different prioritization of care items compared to White WLWH and women of both races living without HIV. Specifically, the likelihood of discussions about abortion discussion, domestic violence discussion, and drug and alcohol use will vary based on patient race and HIV status, as well ordering of drug and alcohol tests and STI screening.

We first explored the likelihood of discussing abortion based on patient race and HIV status. The overall model for discussing abortion was not significant, $\chi^2(5) = 9.723$, df = 5, $p = .083$. Nagelkerke's pseudo-R^2 was .125, suggesting that 12.500% of the total variance in rankings for discussing abortion can be accounted for by this model. Although the overall model was found to be non-significant, examination of parameter estimates demonstrated a significant difference in likelihood of discussing abortion between White women living without HIV and Black WLWH, Wald's $\chi^2(1) = 6.384$, $p = .012$. White women living without HIV had 1.627 times greater odds of having abortion ranked lower (closer to 12) compared to Black WLWH (95% CI, .365 to 2.889). However, given the overall non-significance of the model, these significant differences should be interpreted with caution.

Interestingly, when we removed nurse practitioner and physician assistant students from the sample and only looked at medical students, the overall model for discussing abortion became significant, $\chi^2(5) = 12.942$, df = 5, $p = .024$. Nagelkerke's pseudo-R^2 was .183, showing that 18.300% of rankings in medical students' discussing abortion was accounted for by this model. The pairwise comparisons yielded the same significant difference as in the first non-significant model. There was still a significant difference

between White women living without HIV and Black WLWH, Wald's $\chi^2(1) = 6.577$, $p = .010$. White women living without HIV had 1.823 times greater odds of having discussing abortion ranked lower than black WLWH (95% CI, .430 to 3.217). This finding suggests that among medical students, the intersection of race and HIV status may impact their choices to discuss abortion with their patients. However, it should be noted that this was the only analysis where results changed after solely examining medical students; upon further inspection of all other analyses among medical students only, results did not change.

We also examined the likelihood of screening for drug use based on patient race and HIV status. The overall model for discussing abortion was not significant, $\chi^2(5) = 2.885$, df = 5, $p = .718$. Further, Nagelkerke's pseudo-R^2 was .039, suggesting that only 3.900% of the total variance in rankings for drug screening can be accounted for with this model. Further examination of parameter estimates yielded no significant differences between groups, which is to be expected given the non-significant model.

Similar to results for screening for drug use, based on patient race and HIV status the overall model for screening for alcohol use was not significant, $\chi^2(5) = 2.082$, df = 5, $p = .838$. Nagelkerke's pseudo-R^2 was .028, suggesting that only 2.800% of the total variance in rankings for screening for alcohol use can be accounted for by this model. Again, the likelihood of rankings between the groups were not significant.

Additionally, the overall model examining the likelihood of screening for tobacco use based on patient race and HIV status was not significant, $\chi^2(5) = 1.646$, df = 5, $p = .896$. Nagelkerke's pseudo-R^2 was .022, suggesting that 2.200% of the total variance in rankings for tobacco screening can be accounted for by this model. Upon further inspection, none of the pairwise comparisons were found to be significant.

Finally, we explored the likelihood of screening for domestic violence based on patient race and HIV status. The overall model for discussing abortion was not significant,

$\chi^2(5) = 3.230$, df = 5, $p = .665$. Nagelkerke's pseudo-R^2 was .043, suggesting that 4.300% of the total variance in rankings for discussing abortion can be accounted for by this model. In line with most of the prior analyses, none of the pairwise comparisons were significant.

We also assessed the three proposed "To Do" items (STI, drug, and alcohol screening) using one binary logistic regression for each outcome. Each logistic regression used indicator contrasts with the first group as the reference group to determine significant differences between groups. We started by examining the interactions of patient race and HIV status on the likelihood of STI screening. Ultimately, this model was found the be non-significant, $\chi^2(3) = 7.186$, df = 3, $p = .066$. Nagelkerke's pseudo-R^2 was .107, meaning that 10.700% of the variance in screening for STIs was due to the interaction of race and HIV status. Based on these results, it can be inferred that the interaction of race and HIV status do not predict the likelihood of screening for STIs.

We then explored interactions of patient race and HIV status on likelihood of screening urine or blood for the presence of drugs. This interaction was also found to be non-significant, $\chi^2(3) = 7.093$, df = 3, $p = .069$. Further, Nagelkerke's pseudo-R^2 was .153, indicating that 15.300% of the variance in screening for drug use was due to the interaction of race and HIV status. Again, we can conclude that interactions of patient race and HIV status do not predict the likelihood of screening for drugs.

Finally, we examined the interactions of race and HIV status on the likelihood of screening the urine or blood for alcohol use. This interaction was found to be non-significant, $\chi^2(3) = 3.096$, df = 3, $p = .377$. Nagelkerke's pseudo-R^2 was .282, indicating that 28.200% of the variance in screening for alcohol use was due to the interaction of race and HIV status. These findings suggest that interactions of patient race and HIV status do not predict the likelihood of screening for alcohol use.

H5: The Interactions of Patient Race and Abortion Status

Second, based on H5, we expected another significant interaction of patient race and abortion status, such that students will rank care items differently for Black women who have had an abortion. The likelihood of discussions about abortion discussion, domestic violence discussion, and drug and alcohol use will vary based on patient race and abortion status, as will the likelihood for ordering of drug and alcohol tests and STI screening.

We first explored the likelihood of discussing abortion based on patient race and abortion status. The overall model for discussing abortion was not significant, $\chi^2(5) = 6.029$, df = 5, $p = .303$. Nagelkerke's pseudo-R^2 was .077, suggesting that 7.700% of the total variance in rankings for discussing abortion can be accounted for by this model. As expected, based on the non-significant model, none of the pairwise comparisons were significant.

We then examined the likelihood of screening for drug use based on patient race and abortion status. The overall model for discussing abortion was not significant, $\chi^2(5) = 1.356$, df = 5, $p = .929$. Further, Nagelkerke's pseudo-R^2 was .018, suggesting that only 1.800% of the total variance in rankings for drug screening can be accounted for with this model. Further examination of parameter estimates yielded no significant differences between groups, which is to be expected given the non-significant model.

Further, based on patient race and abortion status the overall model for screening for alcohol use was not significant, $\chi^2(5) = 6.051$, df = 5, $p = .301$. Nagelkerke's pseudo-R^2 was .078, suggesting that only 7.800% of the total variance in rankings for screening for alcohol use can be accounted for by this model. However, despite the non-significant model, examination of pairwise comparisons revealed a significant difference on rankings of discussing alcohol use between Black women who had never had an abortion and Black women who had an abortion, Wald's $\chi^2(1) = 4.320$, $p = .038$. Black women who had never had an abortion had 1.256 times lower odds of having alcohol use ranked lower (closer to 12) compared to Black women who had an abortion (95% CI, -2.440 to -.072). However, given

the overall non-significance of the model, these significant differences should be interpreted with caution.

Additionally, the overall model examining the likelihood of screening for tobacco use based on patient race and abortion status was not significant, $\chi^2(5) = 7.407$, df = 5, $p = .192$. Nagelkerke's pseudo-R^2 was .094, suggesting that 9.400% of the total variance in rankings for tobacco screening can be accounted for by this model. Similar to the rankings for alcohol use screening, despite the non-significant model, examination of pairwise comparisons revealed a significant difference on rankings of discussing tobacco use between Black women who had never had an abortion and Black women who had an abortion, Wald's $\chi^2(1) = 5.234$, $p = .022$. Black women who had never had an abortion had 1.384 times lower odds of having tobacco use ranked lower (closer to 12) compared to Black women who had an abortion (95% CI, -2.440 to -.072). However, given the overall non-significance of the model, significant differences should be interpreted carefully.

Finally, we explored the likelihood of screening for domestic violence based on patient race and abortion status. The overall model for discussing abortion was not significant, $\chi^2(5) = 3.490$, df = 5, $p = .625$. Nagelkerke's pseudo-R^2 was .045, suggesting that 4.500% of the total variance in rankings for discussing abortion can be accounted for by this model. As expected, based on the non-significant model none of the pairwise comparisons were significant.

Again, to assess the three proposed "To Do" items (STI, drug, and alcohol screening) we used binary logistic regressions with indicator contrasts. We first examined the interactions of patient race and abortion status on the likelihood of STI screening. Ultimately, this model was found the be non-significant, $\chi2(3) = 2.832$, df = 3, p = .418. Nagelkerke's pseudo-R^2 was .043, meaning that only 4.300% of the variance in screening for STIs was due

to the interaction of race and abortion status. Thus, it is evident that the interaction of race and abortion status does not predict the likelihood of screening for STIs.

We then explored interactions of patient race and abortion status on likelihood of screening urine or blood for the presence of drugs. This interaction was found to approach significance but was ultimately not significant, $\chi2(3) = 7.086$, df = 3, p = .069. Further, Nagelkerke's pseudo-R^2 was .153. indicating that 15.300% of the variance in screening for drug use was due to the interaction of race and abortion status. These results demonstrate that, in this sample, race and abortion status do not predict the likelihood of screening for drug use.

Finally, we examined the interactions of race and abortion status on the likelihood of screening the urine or blood for alcohol use. This interaction was not significant, $\chi2(3) = 2.575$, df = 3, p = .462. Nagelkerke's pseudo-R^2 was .235, indicating that 23.500% of the variance in screening for alcohol use was due to the interaction of race and abortion status. These findings suggest that interactions of patient race and abortion status do not predict the likelihood of screening for alcohol use.

H6: The Interactions of Patient HIV and Abortion Statuses

Third, for H6, we predicted a significant interaction of patient HIV status and abortion status, such that students will prioritize different care items for WLWH who have had an abortion, compared to those who have not. In line the with other hypotheses, the likelihood of discussions about abortion discussion, domestic violence discussion, and drug and alcohol use will vary based on patient abortion and HIV status, as well as the likelihood for ordering drug and alcohol tests and STI screening.

We first explored the likelihood of discussing abortion based on patient HIV and abortion statuses. The overall model for discussing abortion was not significant, $\chi^2(5) = 2.503$, df = 5, $p = .776$. Nagelkerke's pseudo-R^2 was .034, suggesting that only 3.400% of the

total variance in rankings for discussing abortion can be accounted for by this model. No pairwise comparisons were found to be significant.

We also examined the likelihood of screening for drug use based on patient HIV and abortion statuses. The overall model for discussing abortion was not significant, $\chi^2(5) = 4.184$, df = 5, $p = .523$. Further, Nagelkerke's pseudo-R^2 was .056, suggesting that only 5.600% of the total variance in rankings for drug screening can be accounted for with this model. Further examination of parameter estimates yielded no significant differences between groups, which is expected given the non-significant overall model.

Similar to results for screening for drug use, based on patient HIV and abortion statuses the overall model for screening for alcohol use was not significant, $\chi^2(5) = 2.082$, df = 5, $p = .838$. Nagelkerke's pseudo-R^2 was .028, suggesting that only 2.800% of the total variance in rankings for screening for alcohol use can be accounted for by this model. Again, the likelihood of rankings between the groups were not significant.

Additionally, the overall model examining the likelihood of screening for tobacco use based on patient HIV and abortion statuses was not significant, $\chi^2(5) = 7.239$, df = 5, $p = .203$. Nagelkerke's pseudo-R^2 was .094, suggesting that 9.400% of the total variance in rankings for tobacco screening can be accounted for by this model. Upon further inspection, despite the non-significant model, two of the pairwise comparisons were found to be significant. First, significant differences were seen between women living without HIV who had never had an abortion and WLWH who had an abortion, Wald's $\chi^2(1) = 4.570$, $p = .033$. Women living without HIV who had never had an abortion had 1.330 times lower odds of having tobacco use ranked lower (closer to 12) compared to WLWH who had an abortion (95% CI, -2.549 to -.111). Second, significant differences were found between WLWH who had never had an abortion and WLWH who had an abortion, Wald's $\chi^2(1) = 4.020$, $p = .045$. WLWH who had never had an abortion had 1.126 times lower odds of having tobacco use

ranked lower (closer to 12) compared to WLWH who had an abortion (95% CI, -2.226 to -.025). Like other significant pairwise comparisons, given the overall non-significance of the model, significant differences should be interpreted with caution.

We also explored the likelihood of screening for domestic violence based on patient HIV and abortion statuses. The overall model for discussing abortion was not significant, $\chi^2(5) = 3.356$, df = 5, $p = .645$. Nagelkerke's pseudo-R^2 was .045, suggesting that 4.500% of the total variance in rankings for discussing abortion can be accounted for by this model. None of the pairwise comparisons were significant.

We again assessed the three "To Do" items using binary logistic regressions with indicator contrasts to test the predictive power of the interaction of patient HIV and abortion statuses on our outcomes. We started by examining the interactions of patient HIV and abortion statuses on the likelihood of STI screening. The overall model was found the be non-significant, $\chi^2(3) = 6.790$, df = 3, $p = .079$. Nagelkerke's pseudo-R^2 was .101, suggesting that 10.100% of the variance in screening for STIs was due to the interaction of HIV and abortion statuses. The results imply that interactions of patient HIV and abortion statuses do not predict the likelihood of STI screening.

We then explored interactions of patient HIV and abortion statuses on likelihood of screening urine or blood for the presence of drugs. This interaction was found to be significant, $\chi^2(3) = 8.288$, df = 3, $p = .040$. Further, Nagelkerke's pseudo-R^2 was .178, indicating that 17.800% of the variance in screening for drug use was due to the interaction of race and HIV status. However, inspection of our contrasts revealed that only the constant was significant ($p = .007$), and there were no significant differences among the groups. Our results demonstrate that the interaction of patient HIV and abortion status does not significantly predict the likelihood of drug screening.

Finally, we examined the interactions of HIV and abortion statuses status on the likelihood of screening the urine or blood for alcohol use. This interaction approached significance but was found to be non-significant, $\chi^2(3) = 3.274$, df = 3, $p = .351$. Nagelkerke's pseudo-R^2 was .298, indicating that 29.800% of the variance in screening for alcohol use was due to the interaction of HIV and abortion statuses. These findings suggest that interactions of patient HIV and abortion statuses do not predict the likelihood of screening for alcohol use.

H7: Three-Way Interactions of Patient Race, HIV Status, and Abortion Status

Finally, based on H7, we expected a three-way interaction of patient race, HIV status, and abortion status. That is, the likelihood of ranking the "To Discuss" and "To Do" items would differ based on the patient's race, HIV status, and abortion status. First, we examined the likelihood of discussing abortion based on patient race, HIV status, and abortion status. The overall model for discussing abortion was not significant, $\chi^2(10) = 10.223$, df = 10, $p = .421$. Nagelkerke's pseudo-R^2 was .131, suggesting that 13.100% of the total variance in rankings for discussing abortion can be accounted for by this model. Despite the non-significant overall model, one pairwise comparison was found to be significant. We found a significant difference on discussing abortion between White women living without HIV who had never had an abortion and Black WLWH who had an abortion, Wald's $\chi^2(1) = 4.043$, $p = .044$. White women living without HIV who had never had an abortion had 1.786 times greater odds of having tobacco use screening ranked lower (closer to 12) compared to Black WLWH who had an abortion (95% CI, .045 to 3.526). Again, as the model was non-significant, these results should be interpreted cautiously.

We also examined the likelihood of screening for drug use based on patient race, HIV status, and abortion status. The overall model for discussing abortion was not significant, $\chi^2(10) = 3.465$, df = 10, $p = .968$. Further, Nagelkerke's pseudo-R^2 was .047, suggesting that

only 4.700% of the total variance in rankings for drug screening can be accounted for with this model. Further examination of parameter estimates yielded no significant differences between groups, as anticipated given the non-significant overall model.

Similar to results for screening for drug use, based on patient race, HIV status, and abortion status, the overall model for screening for alcohol use was not significant, $\chi^2(10) = 6.294$, df = 10, $p = .790$. Nagelkerke's pseudo-R^2 was .083, suggesting that only 8.300% of the total variance in rankings for screening for alcohol use can be accounted for by this model. Again, none of the likelihood of rankings between the groups were not significant.

Additionally, the overall model examining the likelihood of screening for tobacco use based on patient race, HIV status, and abortion status was not significant, $\chi^2(10) = 8.336$, df = 10, $p = .596$. Nagelkerke's pseudo-R^2 was .108, suggesting that 10.800% of the total variance in rankings for tobacco screening can be accounted for by this model. Upon further inspection, despite the non-significant model, one of the pairwise comparisons was found to be significant. Significant differences were seen between Black women living without HIV who had never had an abortion and Black WLWH who had an abortion, Wald's $\chi^2(1) = 4.166$, $p = .041$. Black women living without HIV who had never had an abortion had 1.839 times lower odds of having tobacco use ranked lower (closer to 12) compared to Black WLWH who had an abortion (95% CI, -3.605 to -.073). Like other significant pairwise comparisons, given the overall non-significance of the model, significant differences should be interpreted with caution.

Finally, we explored the likelihood of screening for domestic violence based on race, HIV status, and abortion status. The overall model for discussing abortion was not significant, $\chi^2(10) = 7.732$, df = 10, $p = .655$. Nagelkerke's pseudo-R^2 was .100, suggesting that 10.000% of the total variance in rankings for discussing abortion can be accounted for by this model. None of the pairwise comparisons were significant.

We assessed the three "To Do" items for the three-way interaction in the same way as H4-H6: using binary logistic regressions. We started by examining the interaction of patient race, HIV status, and abortion status on the likelihood of STI screening. The overall model was found the be non-significant, $\chi^2(7) = .260$, df = 7, $p = .249$. Nagelkerke's pseudo-R^2 was .133, suggesting that 13.300% of the variance in screening for STIs was due to the interaction of patient race, HIV status, and abortion status. Thus, it is evident that we cannot predict the likelihood of STI screening based on interactions of the patient race, HIV status, and abortion status.

We then explored three-way interactions of patient race, HIV status, and abortion status on likelihood of screening urine or blood for the presence of drugs. This interaction was found to be significant, $\chi^2(7) = 14.568$, df = 7, $p = .042$. Further, Nagelkerke's pseudo-R^2 was .304, indicating that 30.400% of the variance in screening for drug use was due to the interactions of race, HIV status, and abortion status. However, upon further inspection of the comparisons between groups, only the constant was found to be significant; that is, there were no significant differences found between the groups in terms of likelihood of screening for drugs.

Finally, we examined the three-way interactions of patient race, HIV status, and abortion status on the likelihood of screening the urine or blood for alcohol use. This interaction approached significance but was found to be non-significant, $\chi^2(7) = 4.205$, df = 7, $p = .756$. Nagelkerke's pseudo-R^2 was .381, indicating that 38.100% of the variance in screening for alcohol use was due to the three-way interaction. These findings suggest that interactions of patient race, HIV, and abortion status do not predict the likelihood of screening for alcohol use.

Follow-Up Analyses for H4 – H7: MANCOVAs

We conducted a series of between-subjects MANCOVAs as follow-up analyses for our ordinal regressions. This was done as the ordinal regressions only allow for one outcome variable to be assessed in each analysis, and thus we cannot account for the rankings of the other outcomes in these findings. We conducted four MANCOVAS, one for each hypothesis H4 through H7. All analyses included the appropriate implicit biases as covariates; that is, analyses examining patient race included racism as a covariate, analyses examining patient HIV status included HIV stigma as a covariate, and analyses examining patient abortion status included abortion stigma as a covariate. Other covariates were considered in the models, including measures that significantly correlated with our outcomes such as hostile sexism, attitudes toward abortion-providing physicians, and stigmatizing attitudes toward PWLH. However, adding these covariates did not change our findings and were thus not included in the final models.

We first explored H4, which hypothesized a significant interaction of patient race and HIV status on outcome item rankings. Specifically, the rankings for discussions about abortion discussion, domestic violence discussion, and drug and alcohol use will vary based on patient race and HIV status. However, our MANCOVA revealed that the race by HIV status interaction was not significant in the overall model, Pillai's Trace = .176, $F(15, 198) = .823$, $p = .651$, partial $\eta 2 = .059$. Neither covariate of racism, $p = .459$, or HIV stigma, $p = .801$, were significant in the model. That is, there are no statistically significant differences among the outcomes based on the interaction of patient race and HIV status.

We then assessed H5, the significant interaction of patient race and abortion status on outcome item rankings, predicting that the rankings for discussions about abortion discussion, domestic violence discussion, and drug and alcohol use will vary based on patient race and abortion status. Like our analyses for H4, the MANCOVA for H5 revealed that the race by abortion status interaction was not significant in the model, Pillai's Trace = .166, $F(15, 204)$

= .795, p = .682, partial η2 = .055. The covariates of racism, p = .443, and abortion stigma, p = .965, were not significant either. These findings suggest no statistically significant differences among the outcome rankings based on the interaction of patient race and abortion status.

Our H6 hypothesized a significant interaction of patient HIV and abortion statuses on outcome item rankings. Specifically, the rankings for discussions about abortion discussion, domestic violence discussion, and drug and alcohol use will vary based on patient HIV and abortion statuses. Similar to results for H4 and H5, the MANCOVA revealed that the HIV status by abortion status interaction was not significant for the overall model, Pillai's Trace = .178, F(15, 198) = .831, p = .642, partial η2 = .059. Neither covariate of HIV stigma, p = .553, or abortion stigma, p = .829, were significant in the model. Based on these findings we infer there are no statistically significant differences among the outcomes based on the interaction of patient HIV and abortion statuses.

Finally, we explored H7, which hypothesized a significant three-way interaction of patient race and HIV status on outcome item rankings. Specifically, the rankings for discussions about abortion discussion, domestic violence discussion, and drug and alcohol use will vary based on patient race and HIV status. However, our MANCOVA revealed that the overall three-way interaction model was not significant, Pillai's Trace = .329, F(35, 315) = .633, p = .949, partial η2 = .066. None of the covariates including racism, p = .460, HIV stigma, p = .824, and abortion stigma, p = .971, were significant in the model. That is, there are no statistically significant differences among the outcomes based on the three-way interactions of patient race, HIV status, and abortion status.

Discussion

Summary: H1 – H3

The current project sought to better understand how healthcare professional students' biases and stigmatizing attitudes impacted their prioritization of care items for women seeking prenatal care. While existing research has examined prenatal care patients' experiences of discrimination, less work has focused on the role of providers' biases on the care they give; some work in the area of obesity has shown that anti-fat biases impact prenatal care communications and recommendations (e.g., Washington-Cole et al., 2017). This work fills a gap in the literature to show the role that healthcare professionals' biases can have on the recommendations they are willing to make for their prenatal care patients.

First, results of univariate Kruskal-Wallis tests and binary logistic regressions for H1-H3 showed that few of our outcomes were significantly predicted by the interactions of patient characteristics and the correspondent implicit bias. For our first hypothesis (H1), which explored the interaction of patient race and respondent racism, our predictions were not confirmed. The interaction of patient race and racism did not significantly predict rankings of any of our outcome items. This finding is counter to predictions and is not consistent with previous literature showing that healthcare providers' racial bias may impact treatment decisions for Black patients (FitzGerald & Hurst, 2017).

For H2 and H3, our hypotheses were partially confirmed. H2 predicted that interactions of patient HIV status and respondent HIV stigma would predict rankings of our outcomes. We found a significant interaction of patient HIV status and HIV stigma on screening the patient for drug use only. Generally, results showed that respondents with higher levels of HIV stigma were ranked screening their patient for drug use higher (i.e., closer to 1) compared to participants with lower levels of HIV stigma. These findings make sense given that HIV stigma is often tied to perceptions that drug users, particularly injection drug users, have or will contract HIV; individuals with high levels of HIV stigma may also have increased drug use stigma, which may lead them to prioritize screening for drug use.

This is particularly true in a prenatal care setting, where pregnant people are subject to increased moral surveillance from some healthcare providers (Cockrill & Nack, 2013; Greene, Ion, Kwaramba, Lazarus, & Loutfty, 2017; Nack, 2008). It could be that high stigma predicting a higher ranking of screening for drug use could be a manifestation of moral surveillance. Moreover, this interaction could also be due to other patient characteristics, such as race or abortion status, that were explored in subsequent analyses.

Similarly, for H3, we found one significant interaction of patient abortion status and respondent abortion stigma. This interaction significantly predicted rankings of screening for tobacco use. Interestingly, rankings for patients were highest (i.e., closest to 1) when they had had an abortion, compared to when patients had not. This finding aligns with the Zestcott et al. (2016) model, which suggests that implicit biases, such as implicit abortion stigma, lead to inequities in decisions about patient care. In this case, increased abortion stigma is interacting with patient abortion status to predict inequities in screening for tobacco use. Further, similar to findings for H2, this may be a manifestation of moral surveillance; respondents may perceive that individuals who have had an abortion have made poor choices for themselves, and thus may be more likely to engage in other potentially unhealthy choices, such as tobacco use, which is highly stigmatized among pregnant people; in our sample, 103 out of 104 individuals who responded to an item about pregnancy and tobacco use reported that pregnant women should not use tobacco. Additionally, abortion stigmatizing attitudes include perceptions of people who have had abortions as irresponsible (Kumar et al., 2009). Even if individuals scored lower on the implicit abortion stigma task, it is possible that they still have some level of abortion stigma wherein they think of abortion seekers as irresponsible or unable to make good choices for their health. This would be in line with stereotype content model (SCM; Fiske et al., 1999), which posits that individuals who are perceived as low competence will be subjected to increase paternalistic treatment.

It should be noted that for H1-H3, there are no clearly defined cutoffs for our implicit bias and stigma tasks as to what defines low bias/stigma, moderate bias/stigma, and high bias/stigma. To define low, moderate, and high levels of each type of bias, we used tertile cutoffs based on our sample. As such, our data can only be interpreted in the context of our sample and results might not translate to other samples with differing ranges of bias. It is possible that even the individuals who scored "low" on the implicit bias tasks hold some level of bias that impacts their perceptions of their patients.

Summary: H4 – H7

Ordinal regressions and follow-up MANCOVAs were conducted to explore interactions in H4 – H7. Our H4 predicted that the interaction between patient race and HIV status would predict the likelihood of our outcomes. Results showed that our hypotheses were partially confirmed. Although the interaction of race and HIV status did not significantly predict the likelihood of screening for drug, alcohol, tobacco, or DV, we did find significant differences between groups for discussing abortion. White women living without HIV had significantly greater odds of having abortion discussions ranked lower (i.e., closer to 12) than Black WLWH. These findings align with predictions that Black WLWH would have different rankings than White women. Further, findings support previous research suggesting that both Black women and WLWH receive disparate treatment compared to White women (Borrero et al., 2009; Dehlendorf et al., 2010) and women living without HIV (Coll et al., 2014; Kawale et al., 2014; MacCarthy et al., 2012). Results also support the SCM (Fiske et al., 1999) by showing that individuals with multiple identities perceived as "low competence" are subject to different treatment.

H5 predicted that patient race and abortion status would interact to impact the likelihood of our outcome items. Again, results were partially confirmed. No significant differences were found for discussing abortion, screening for DV, and screening for drug use.

However, we found significant pairwise comparisons for screening for tobacco and alcohol use. Black women who had never had an abortion had both screening for alcohol and tobacco use ranked lower than Black women who had an abortion. This countered expectations that White women would differ from Black women based on abortion status; however, this also suggests that for Black women, they may be treated differently based on their abortion history. For White women, there may not be any differences in treatment based on their abortion history.

H6 explored the interactions of patient HIV and abortion statuses on our outcomes. The interaction significantly predicted the likelihood of screening for tobacco use, such that women living without HIV who had never had an abortion had tobacco screening ranked lower than women WLWH who had an abortion. There was also a significant difference between WLWH who had an abortion and those who did not, with WLWH who had never had an abortion had tobacco ranked lower than WLWH who had an abortion. This is similar to the finding from H3, where patients who had had an abortion had screening for tobacco use ranked higher than those who had not had an abortion. These results suggest that abortion status has an important effect on decisions to screen for tobacco use. Again, this could be a manifestation of moral surveillance, or an indicator of abortion stigma.

Finally, H7 predicted a three-way interaction of patient race, HIV status, and abortion status on our outcomes. While none of the overall models were significant, we found significant pairwise comparisons for the outcome of discussing abortion and screening for tobacco use. White women living without HIV who had never had an abortion had discussing abortion ranked lower (closer to 12) than Black WLWH who had an abortion. Examination of the rankings for discussing tobacco use showed differences among Black women only; Black women living without HIV who had never had an abortion were less likely to have discussing tobacco use ranked lower when compared to Black WLWH who had had an abortion.

Importantly, our findings for H4 through H7 extend on previous research by demonstrating differences based on the intersection of patient race and HIV status, as well as demonstrating this effect in the context of prenatal care. Previous research demonstrates disparities in prenatal care based on one identity only; that is, previous findings look at race, HIV status, or abortion status independent of other intersections of identity or being. It is imperative to explore intersections of identity, as individual facets of identity do not exist in a vacuum (Crenshaw, 1989). Women's experiences are nuanced based on the whole of their identities, as our findings provide some evidence for. As such, the present research attempts to rectify the limitations of previous research that treat demographic variables, such as race or abortion status, as independent of each other (Weber, 2006). We considered that intersections of identity and experience, relate to the prenatal care recommendations they receive. Although many of our findings appeared non-significant, some demonstrate that prenatal care item rankings may differ based on intersections of race, HIV status, and abortion status.

Potential Explanations for Our Findings

There are numerous potential explanations that may explain our findings across all hypotheses, broadly. First, our findings suggest that individuals' implicit biases and perceptions of women from different groups may lead to disparities in some of our outcomes. We saw many comparisons between groups that were significant, implying trends in outcome rankings based on patient characteristics. Again, these findings align with previous research showing disparate treatment based on race (Borrero et al., 2009; Dehlendorf et al., 2010; FitzGerald & Hurst, 2017), HIV status (Duff et al., 2019; MacCarthy et al., 2012), and abortion status (Homaifar et al., 2017; Rivlin et al., 2020). However, although some findings show that there may be interactions among race, HIV status, and abortion status to predict our outcomes, it is imperative to acknowledge that none of the overall models for H1 through H7

were significant. As a result, significant differences between groups should be interpreted with caution.

This lack of significance in our overall models is likely due to a lack of statistical power. For H1 through H3, we were only able to include 76 participants in our analyses due to nearly 20% of participants' EP task scores not being recorded by Inquisit. Further, for H4 through H7, only 111 individuals' data were included, as 15 individuals from our overall sample were excluded from the data due to incomplete data on the outcome measures. This led small effect sizes and to statistical power lower than .80 for many of our analyses. This lower power likely made it difficult to detect a true effect among our sample, thereby leading to many non-significant results.

We should also consider the possibility that implicit biases do not have as much of an effect on prenatal care. While some research suggests that healthcare providers' implicit biases have some effect on treatment outcomes (Bower et al., 2009; Hirsch, Hollingshead, Ashburn-Nardo, & Kroenke, 2015; Williams et al., 2015), other research has found that implicit bias does not affect treatment decisions across multiple areas of medicine (e.g., Dehon, Weiss, Jones, Faulconer, Hinton, & Sterling, 2017; Haider, Sexton, Sriram, Cooper, Efron, Swoboda… & Cornewell, 2011; Oliver, Wells, Joy-Gaba, Hawkins, & Nosek, 2014; Sabin, Nosek, Rivara, & Greenwald, 2009). It could be that our research is more in line with the latter. That is, it could be that implicit biases do not impact healthcare professional students' clinical decision making. Instead, their decisions may be based on past knowledge, past experiences, personal beliefs about patient-provider interactions, the healthcare system in which the students are learning, and more.

It could also be that students are not far enough into their medical training to lean on implicit biases and stigma when making medical decisions. Previous research demonstrates that students' stigmatizing attitudes toward individuals with SUD worsen as they move

through their medical training and into residency (Avery et al., 2016; Avery et al., 2017; Geller et al., 1989; Lindberg et al., 2006). This is likely due to the so-called hidden curriculum, wherein trainees absorb the covert attitudes, behaviors, and habits of the individuals training them. On the flip side, it is possible that the students in our sample have been trained in environments where the hidden curriculum is full of positive, inclusive, and affirming care given to individuals, regardless of race, HIV status, abortion status, and other patient characteristics.

On the other hand, it may be that implicit bias is associated with clinical decisions, but our scenarios were not complex or ambiguous enough to elicit a response. Previous research shows that patient scenarios that are complex or ambiguous increase cognitive load and are more likely to elicit biased responses. Previous studies that have found no effect of implicit bias on clinical decisions have used a simple vignette (Sabin et al., 2008) or picture (Haider et al., 2011), both of which were applied in the present study. Other work demonstrates that situations that lead to increased cognitive load are more likely to elicit discriminatory responses and inequitable treatment (Burgess, 2010; Burgess, Phelan, Workman, Hagel, Nelson, Fu… & van Ryn, 2014). This may include situations that are ambiguous or complex, such as pain or symptom reports that are inconsistent with objective findings from medical testing. Other aspects that may make a situation more complex could be low patient load and increased time with the patient. However, much of this research is done examining actual physician diagnoses in real-life patient interactions. While we attempted to put our participants under time pressure by giving them 15 minutes with their patient and a two-minute limit to make prenatal care item rankings, it may be that the online formatting was not realistic enough, and therefore did not put participants under enough cognitive load.

Relatedly, it could also be that our vignette and picture combination were too obvious for participants. Most student respondents figured out what the study was about and responded accordingly. Examination of qualitative data where students reported what they thought the study was about suggested that 74 out of 111 participants correctly guessed that the study had to do with patient characteristics or implicit bias and their impacts on prenatal care. If participants guessed the purpose of the study, this may have motivated them to appear non-biased, and thus increased socially desirable responding.

Limitations and Lessons Learned

There are several limitations to be acknowledged with the current research and lessons to be extrapolated from these shortcomings. First, the biggest limitation would be the lack of power in our sample. Post-hoc power analyses using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) show that power ranged dramatically across analyses, ranging from .05 to .86 for our "To Do" items in H1 through H3, from .05 to .14 for our "To Discuss items in H4 through H6, from .06 to .75 for our "To Do" items in H4 through H6, from .06 to .12 for our "To Discuss items in H7, and from .14 to .85 for our "To Do" items in H7. While we initially collected a sample size large enough to provide sufficient power for our analyses, during data screening and preparation, some unexpected challenges arose that dropped our sample size and limited our power. Most notably, almost 20% of participants did not have their evaluative priming scores recorded. While it is unclear whether this was a technical error or whether participants figured out how to skip this task, this limitation means that we cannot adequately assess connections between implicit bias, patient characteristics, and treatment recommendations among our participants. Thus, results should be interpreted with caution; with an increased sample size, we may have found significant effects. In the future, the EP software should be monitored and troubleshot to ensure that all data was being recorded, and measures should be put into place to ensure participants cannot skip the task.

Further, our outcome measure limits the conclusions we can make from this time. Participants were limited in the options they can select. In the case of the "to order" items, they could only select three choices, and in the case of the "to discuss" items were asked to rank items. This does not accurately reflect how students would approach patients in real practice; in the real world, they would be able to order more tests and would likely have longer to discuss items with their patient. Thus, it is unlikely that our outcome will translate to behaviors. Future research should explore how patient identities impact prenatal care recommendations in other ways, including student-reported care or treatment plans.

Similarly, the order our outcome measures were presented in may have had an impact on our results. Participants first completed the list of "to order" items, which included things like screening blood or urine for alcohol, illicit drugs, and tobacco, then the "to discuss" items. It is possible that participants selected items on the "to order" list, which influenced how they ordered items on the "to discuss" list. For example, participants who selected that they would screen the blood or urine for tobacco use might have been more or less likely to discuss smoking, leading to them ranking discussing smoking as higher or lower. In the future, this limitation can be rectified by randomizing the order in which participants seeing the two lists in.

Beyond limitations pertaining to the outcome measure, it is plausible that self-selection bias impacted our results. It is possible that specific characteristics lead participants to complete this study. It could be that students who completed the study have personal characteristics, such as being more helpful, more open, or more socially conscious, that could have led them to participate, while students with lower levels of those qualities may have opted not to participate. However, as this study relied on voluntary participation, it is difficult to mitigate these self-selection effects. Similarly, the researcher noted in recruitment messages that the survey was about prenatal care. This may have drawn people who are most

interested in pursuing prenatal care, individuals who have had more experience in prenatal care, or individuals who have had very positive experiences with prenatal care. Despite no significant relationships with our outcome variables, it is plausible that keen interest in prenatal care, better experiences with prenatal care, or more experiences with prenatal care could have led students to participate. Future research should control for interest in prenatal care, as well as other aspects of prenatal care training.

Additionally, the time pressure that participants were put under could have influenced results. While this pressure was necessary to elicit quick responses and make it more likely that stereotypical perceptions of patients were triggered, we recognize that this time pressure is likely not realistic. This was evidenced by the fact that 15 did not complete all the items, out of 126 participants who completed the full study. Thus, our findings may have been different if participants had had longer to review the chart and select their care items. Future research may consider exploring how patient identities impact care decisions in a more realistic setting.

An added limitation was the number of medical students in our data. The overwhelming majority of participants were in medical school. Given the varying roles in the medical system, along with differences in training among medical students, PA students, and nursing students, it is possible that a sample comprised mainly of medical students swayed results. Moreover, most medical students came from one school: the University of Michigan. It is possible that some aspect about the University of Michigan program trains students to be aware of bias, or perhaps the program attracts students who already have fewer biases. Therefore, it is possible that having so many participants from this single program impacted our results. In the future, researchers should recruit equal numbers of each type of student to assess these results, as well as make meaningful comparisons between the groups if needed.

Other limitations include the makeup of our sample. The sample was majority women and had limited racial and ethnic representation. Any findings showing no association between bias and treatment recommendations should be interpreted in this context. While women tend to make up greater percentages of nurses and physician assistants, women still make up a lower percentage of admittees to medical school and are less likely to be physicians more broadly (AAMC, 2019). As our sample was mostly medical students, our sample is not representative of the medical landscape. It is possible that given a more representative sample, we might find different results. Future research should recruit a sample that includes more adequate diversity to explore potential biases and stigmatization among multiple groups.

Moreover, this study was cross-sectional. That is, we assessed students' ideas about one patient at one point in time. Their perspectives on providing prenatal care might change from patient to patient, or over time, possibly after more training in prenatal care or more experience providing care to patients more generally. While we controlled for experiences with prenatal care, it is impossible to see whether students' views would change from situation to situation, or after additional training. Thus, assessing students' prenatal care plans at multiple time points may be helpful in the future.

Finally, two global events should be acknowledged, both of which likely had an impact on participation and results. First, over the last year, the United States has been continuing to reckon with the plague of racism, evidenced by increasing police brutality against Black people, as well as by increasing hate crimes toward Asian and Asian American individuals. Movements like Black Lives Matter and protests seeking social change among social systems have been at the forefront of the media. Increased visibility of these movements could lead participants to become more aware of racist thoughts and behaviors in

their own lives. This increased awareness and subsequent attempts to change their behaviors may have influenced their responses on the measures.

Second, we are still in the middle of the worldwide COVID-19 pandemic. These are difficult times for all. Even though this study was completed online, the pandemic could have affected participation in several ways. First, COVID-19 restrictions on and around the VCU campuses and medical school made in-person recruitment difficult. Specific education buildings could only be access by current healthcare students, and as such we were unable to access these buildings and place flyers. More importantly, students could also be dealing with the stress of living through a pandemic – it has likely affected their education and potential plans for the future. Students may be grappling with trying to develop clinical skills while also taking extra precautions to not spread the COVID-19 virus. They may be struggling to pass their USMLE exams or apply for residency during the pandemic. These stressors alone may influence students' willingness to take a survey; combined with the pandemic, they may be even less likely to take a survey in their free time. Our results should be interpreted in the context of both major global events.

Implications for Future Research and Clinical Practice

Our findings have numerous implications for future research and application. First, future research should focus on the impact of biases and stigmatizing attitudes on students' actual care provision. This could be done both experimentally and in real practice. Patient characteristics could be experimentally manipulated, then they could develop a plan for that patient during their visit. Plans could be compared among patients. There are also various avenues to explore the impact of bias in real practice. Students could be randomly assigned to view standardized patients of varying identities, then the patient-provider interactions could be observed or recorded. To examine in vivo practice, students' interactions with real patients

could be explored, too. These potential directions could allow for examination of students' behaviors, and whether their biases impact actual provision of care.

The present work explored healthcare professional students, mostly medical students, and not practicing healthcare providers. In the future, this research should be replicated with practicing healthcare providers, including both residents and fully licensed practitioners. Existing research suggests that many providers' biases become worse as they move through their training (Avery et al., 2016; Avery et al., 2017; Lindberg et al., 2006). As such, it is plausible that practicing providers' results may differ from students' results. Further, the same real-world research needed among students should be done with healthcare providers. This can include experimental researcher wherein providers read a patient vignette and create a plan for the visit, or more in vivo research, with providers visiting a standardized patient or having patient-provider interactions recorded. Research that includes active providers can offer researchers a more nuanced understanding of the connections between bias and patient care and begin to demonstrate how bias impacts the outcomes of pregnancy.

Another path for future research would be to explore the impact of biases on care linked to pregnancy outcomes. That is, if biases impact the care provided, does this ultimately lead to more negative outcomes for specific patients? Previous research suggests that providers' biases lead to negative health outcomes among many groups of women, including WLWH and Black women (Hall et al., 2015); no work, to our knowledge has linked the pathway from providers' biases to provision of care to negative outcomes. Providing evidence of this bias to care to outcome pathway would be imperative in demonstrating how detrimental providers' biases can be to pregnant women's health results. After evidence of this pathway has been solidified, results can be incorporated into bias reduction training for students and providers, as well as training regarding equitable provision of care.

Importantly, these results have implications for bias reduction among students and practicing providers. Next steps will include figuring out how best to reduce the impact of bias and incorporate knowledge about the role of bias on care provision into training programs for healthcare students. Previous research has explored reductions of bias among clinical learners and provide numerous avenues through which to incorporate the information gleaned from the present study. For instance, one brief online intervention, intended to decrease substance use disorder (SUD) stigma, was given to medical residents (Avery, Knoepflmacher, Mauer, Kast, Reiner, Avery, & Penzer, 2019) and was found to produce short-term decreases in SUD stigma following the intervention. Using this or similar brief interventions as a base, future work could incorporate information related to race, HIV status, and abortion status.

Other work demonstrates that combatting bias and stigma among healthcare providers may be a long-term endeavor, with aspects of bias reduction, justice, and equity woven into the fabric of a medical school curriculum or even within the medical school environment itself. A recent curriculum proposition (Julian, Mengesha, McLemore, & Steinauer, 2020) seeks to improve cultural competence and cultural humility among clinical learners, such as medical students. This curriculum comprises four modules, with a focus on the historical context of inequity in reproductive healthcare and the systems of power and oppression that allow inequity to persist (Julian et al., 2020). A curriculum-based intervention such as Julian et al.'s integrates information regarding power and oppression with traditional bias reduction tools (e.g., identifying your own biases) and additional clinical skills. A multi-faceted curriculum approach may be useful in reducing racial, HIV-related, and abortion-related biases among healthcare students.

Including information about historical context, power, and systemic oppression is necessary, as other research suggests that the medical school environment or culture, can

impact bias endorsement among students (Christ, Schmid, Lolliot, Swart, Stolle, Tausch… & Hewstone, 2014). Social norms inherent in the climate of each medical school or program exposes norms about intergroup relations, which can then be passed to students. Norms are demonstrated by social referents, who are generally either widely known individuals or leaders of specific groups (Paluck & Shepherd, 2012). In the context of medical education, this includes senior providers, such as attending physicians or residents. Their behaviors and attitudes regarding individuals from marginalized groups become the referent behaviors and attitudes that students then learn. For example, in programs where racist comments were made by attendings or residents, medical students endorsed greater explicit and implicit racial bias (Burke, Dovidio, Perry, Burgess, Hardeman, Phelan… & van Ryn, 2017; van Ryn et al., 2015). However, changing entire school climates is an extended process that cannot be fixed with a single intervention or change to curriculum.

Furthermore, extant bias reduction trainings are not without limitations, and some research demonstrates that many interventions only lead to short term reductions in bias, not long-term, sustained change (FitzGerald, Martin, Berner, & Hurst, 2019). Moreover, just because a bias reduction intervention is implemented does not mean that individuals' actions towards their patients are changes. Future research should further explore the role of bias and stigma on healthcare providers' actions regarding their patients. Examining behaviors as a result of biases and stigmatizing attitudes is imperative, especially considering that healthcare students use senior faculty members and clinicians as social referents; they may be unknowingly picking up biased behaviors witness when shadowing senior clinicians. This may manifest in two ways. First, limited research explores how implicit biases impact treatment recommendations (Hagiwara, Dovidio, Stone, & Penner, 2020). Research in this area has overwhelmingly focused on racial disparities, finding that providers report giving different treatments to Black patients than White patients (e.g., Green et al., 2007; Sabin &

Greenwald, 2012). However, some work does not demonstrate a relationship between implicit bias and treatment recommendations (see Maina et al., 2018 for a review).

Second, a more robust body of literature demonstrates that biases impact patient-provider communications (Hagiwara et al., 2020). Broadly, providers with increased biases have lower quality interactions with patients, including less rapport-building and less patient-centered communication (Hagiwara et al., 2020). However, this has been rarely explored in the context of reproductive healthcare and prenatal care. To better understand the role of providers' biases in provision of prenatal care, subsequent work should explore patient-provider communication during prenatal care visits.

Ultimately, the goal of the present research, as well as subsequent research and application, is to promote the provision of equitable prenatal care for all. If all pregnant individuals receive equitable care, we will see healthier pregnancies with fewer complications in the perinatal period. This may include decreased rates of pre-eclampsia and eclampsia, postpartum venous thromboembolism, postpartum hemorrhage, and maternal mortality among women from historically marginalized groups. Overall, this work provides a foundation upon which to construct future research leading to improved outcomes for all women and individuals who can become pregnant.

Conclusion

Although great strides have been made to improve healthcare and decrease infant mortality in the United States, maternal mortality and other negative pregnancy-related outcomes remain high. Outcomes are the worst among women from marginalized and underserved groups, including Black women, women living with HIV (WLWH), and women who have had an abortion. Pregnant people are already subject to increased moral surveillance and paternalistic treatment within the healthcare system; women from marginalized and underserved groups may be more subject to surveilling and paternalistic treatment, which can ultimately lead to disparate treatment and disparate pregnancy outcomes. In addition to documented disparities in outcomes, Black women, WLWH, and women who have had an abortion report receiving inadequate and unequal care. Further, although we know that healthcare providers' biases have an impact on clinical decision making and the care they give to their patients, it is unclear how biases have an impact of prenatal care decisions. The present study sought to examine how healthcare professional students' biases impact rankings of prenatal care items among pregnant women based on race, HIV status, and abortion status. While most findings were non-significant, some findings suggest that participant implicit bias and intersections of patient characteristics may influence how healthcare students prioritize and decide on prenatal care items for their patients. However, we cannot conclusively demonstrate a connection between biases and prenatal care decisions in this sample. Ultimately, more research is needed to determine whether implicit racial, HIV-related, and abortion-related biases predict the prenatal care provided. This research lays the foundation for subsequent research on which to continue to explore healthcare providers' biases and their impact on prenatal care and pregnancy outcomes. Better understanding the impact of healthcare providers' biases on prenatal care

and pregnancy related outcomes will help to improve training for future providers and improve the quality of care given to patients from marginalized groups.

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Table 1

Demographic characteristics of the sample (N = 111)

Characteristic	Means and/or Percentages
Age	M = 26.21, SD = 2.06
Gender	68.50% women, 24.30% men, 1.00% non-binary
Race	52.30% White, 4.50% Black, 33.30% Asian, 1% Native American/Indigenous, 2% multi-racial
Sexual orientation	82.90% straight, 7.20% bisexual, 2.70% gay or lesbian, 1.80% unsure
Training program type	86.50% medical school, 7.20% PA program, 1.00% NP program
Year in training	56.30% M4, 43.70% M3
Experience with prenatal care	73.90% some, 9.00% a lot
Completed OB/GYN rotation?	80.20% yes, 19.80% no

Table 2

Description of Potential Covariate Measures and Sample Reliability

Name	Description	Reliability (α)
Ambivalent Sexism Inventory	Assesses hostile (HS) and benevolent sexism (BS); 22 items	.82 (HS) .76 (BS)
Symbolic Racism Scale	Assesses explicit racism; eight items	.84
Stigmatizing Attitudes, Beliefs, and Actions Scale	Assesses stigmatizing attitudes toward people who've had abortions; 18 items	.90 (total)
Stigmatizing Attitudes toward People Living with HIV/AIDS	Assesses stigmatizing attitudes toward PLWH/PLWA; 27 items	.90
Attitudes about Abortion-Providing Physicians Scale	Assesses attitudes toward providers of abortions; 20 items	.94 (total)
Social Dominance Orientation Inventory	Assesses beliefs about social hierarchy; 16 items	.89
Demographic Items	Participant characteristics including race, gender, age, year in school, etc.	N/A

Table 3

Correlations between the outcome variables and demographic variables included as potential control variables.

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Abortion	-	-	-	-	-	-	-	-	-	-	-
2. Drug use	-.20*	-	-	-	-	-	-	-	-	-	-
3. Alcohol use	-.22*	.59***	-	-	-	-	-	-	-	-	-
4. Tobacco use	-.36*	.53**	.82***	-	-	-	-	-	-	-	-
5. DV	-.33*	-.01	-.14	.03	-	-	-	-	-	-	-
6. Age	.08	.10	-.03	-.08	-.03	-	-	-	-	-	-
7. Gender	-.14	-.02	-.06	-.004	-.01	.03	-	-	-	-	-
8. Race	.09	-.17	-.12	-.08	.03	-.24*	-.05	-	-	-	-
9. Ethnicity	.05	-.07	-.10	-.08	.003	-.30**	-.07	.82***	-	-	-
10. Program	-.001	-.06	-.17	-.13	.16	.37***	-.10	-.14	-.15	-	-
11. OB Rotation	.05	-.17	-.14	-.13	-.09	-.05	.11	.11	.08	.22*	-
12. PC Exp	-.16	.09	.02	-.02	.11	.10	-.02	-.14	-.12	-.10	-.71***

* $p < .05$; ** $p < .01$; *** $p < .001$

Variable labels. Abortion = discuss abortion; drug use = screen for drug use; alcohol use = screen for alcohol use; tobacco use = screen for tobacco use; DV = screen for domestic violence; OB Rotation = Have participants completed an OB/GYN rotation?; PC Exp = How much experience participants have had with prenatal care (none, some, a lot)?

Table 4

Correlations between the outcome variables and variables included as potential covariates.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Abortion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Drug use	-.20*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Alcohol use	-.22*	.59***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Tobacco use	-.36*	.53**	.82***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. DV	-.33*	-.01	-.14	.03	-	-	-	-	-	-	-	-	-	-	-	-	-
6. R-I	-.15	-.02	-.03	-.009	-.14	-	-	-	-	-	-	-	-	-	-	-	-
7. HIV-I	-.07	-.11	-.02	-.05	.05	.10	-	-	-	-	-	-	-	-	-	-	-
8. A-I	.05	-.01	-.09	-.09	-.21	.28*	-.05	-	-	-	-	-	-	-	-	-	-
9. HS	.21*	.09	-.06	-.13	.15	-.12	-.21	.04	-	-	-	-	-	-	-	-	-
10. BS	.13	-.14	.07	.001	-.02	-.27*	-.07	-.19	.41***	-	-	-	-	-	-	-	-
11. SR	.15	-.13	-.08	-.14	.16	-.01	-.10	-.14	.69***	.36***	-	-	-	-	-	-	-
12. SAHIV	.04	-.08	-.02	-.07	.23*	-.08	-.06	-.10	.59***	.42***	.61***	-	-	-	-	-	-
13. SABAS	.09	-.14	-.10	-.13	.16	-.05	-.12	-.10	.52***	.28**	.59***	.64***	-	-	-	-	-
14. AAPPS - O	-.22*	.23	.19	.26**	-.15	.17	.19	-.02	-.52***	-.39***	-.51	-.51***	-.67***	-	-	-	-
15. AAPPS - C	.013	-.14	-.07	-.13	.09	.08	.22	.04	.08	-.02	.18	.15	.19	-.23*	-	-	-
16. AAPPS - M	.001	.04	-.02	-.05	.19	.03	.01	.07	.15	.04	.36***	.30**	.37***	-.33***	.49***	-	-
17. SDO	.007	-.11	-.03	-.07	.08	.006	-.12	.09	.53***	.30**	.46***	.41**	.20*	-.37***	.07	.12	-
18. Conservatism	.016	.004	-.06	-.08	.15	.03	.14	-.02	.30*	.29*	.32**	.36**	.36**	-.40***	.11	.19	.25*

* p < .05; ** p < .01; *** p < .001

Variable labels. Abortion = discuss abortion; drug use = screen for drug use; alcohol use = screen for alcohol use; tobacco use = screen for tobacco use; DV = screen for domestic violence; R-I = race index of EP task; HIV-I = HIV index of EP task; A-I = abortion index of EP task; HS = hostile sexism subscale of Ambivalent Sexism Inventory; BS = benevolent sexism subscale of Ambivalent Sexism Inventory; SR = Symbolic Racism Scale; SAHIV = Stigmatizing Attitudes toward People Living with HIV Scale; SABAS = total score of the Stigmatizing Attitudes Actions and Beliefs Scale assessing abortion stigma; AAPPS-O = Attitudes toward Abortion Providing Physicians opinion subscale; AAPPS-C = Attitudes toward Abortion Providing Physicians competence subscale; AAPPS-M = Attitudes toward Abortion Providing

Physicians motivation subscale; AM = abortion misinformation score; PAQ-M = masculinity subscale of the Personal Attributes Questionnaire; PAQ-F = femininity subscale of the Personal Attributes Questionnaire; SDO = Social Dominance Orientation; Conservatism = political ideology scores based on the Social and Economic Conservatism scale

Figure 2

Process of Inclusion and Exclusion of Participants

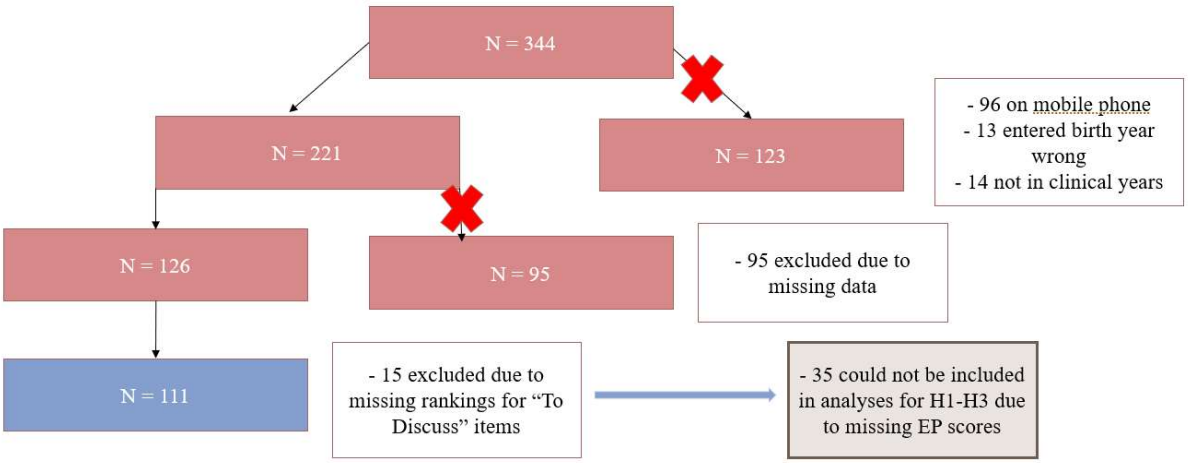


Figure 3

Bar chart of mean ranks by outcome for H1.

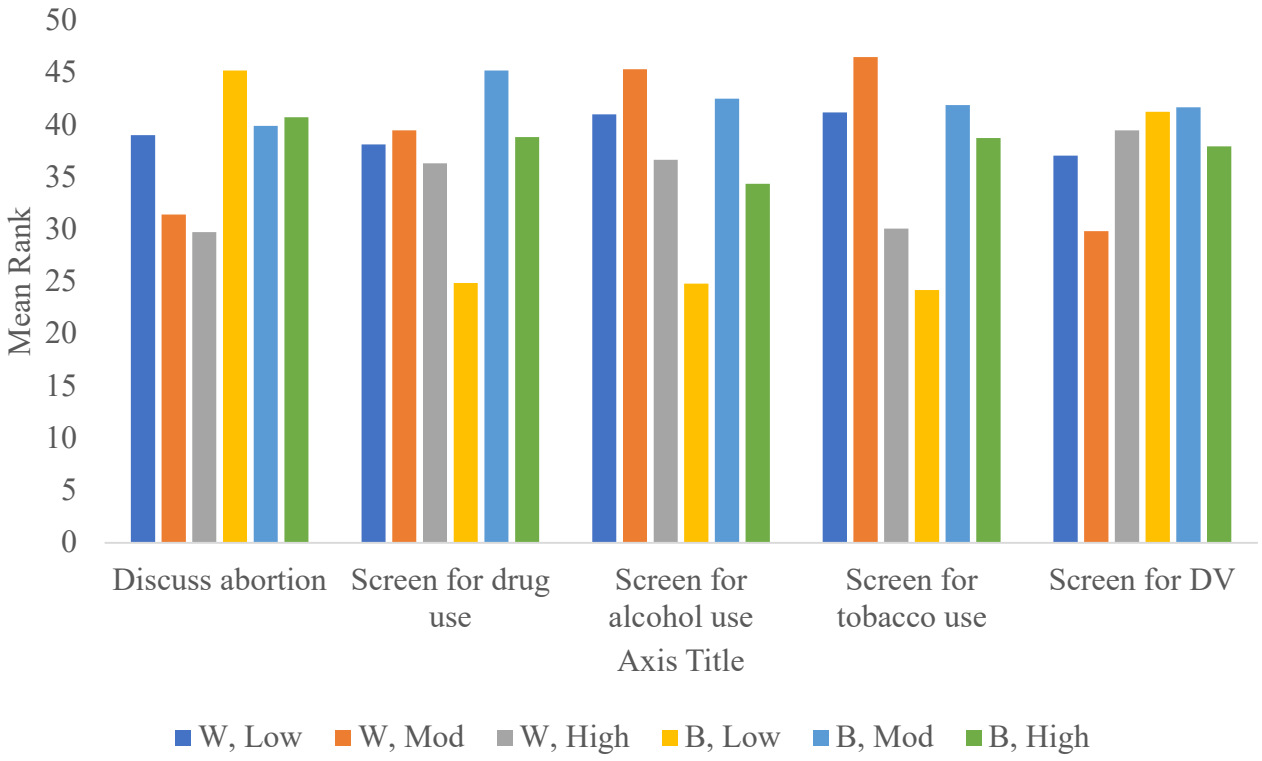
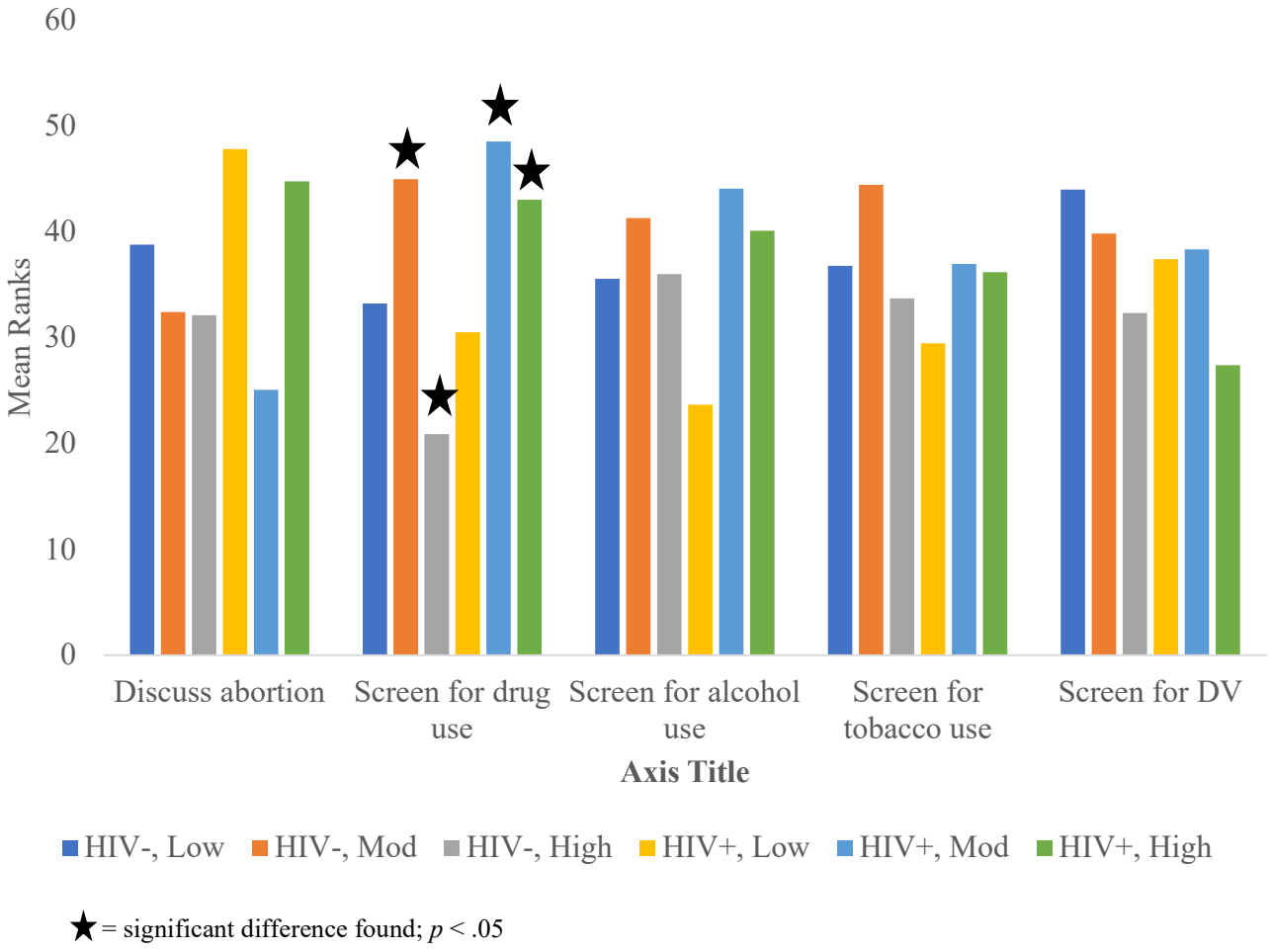


Figure 4

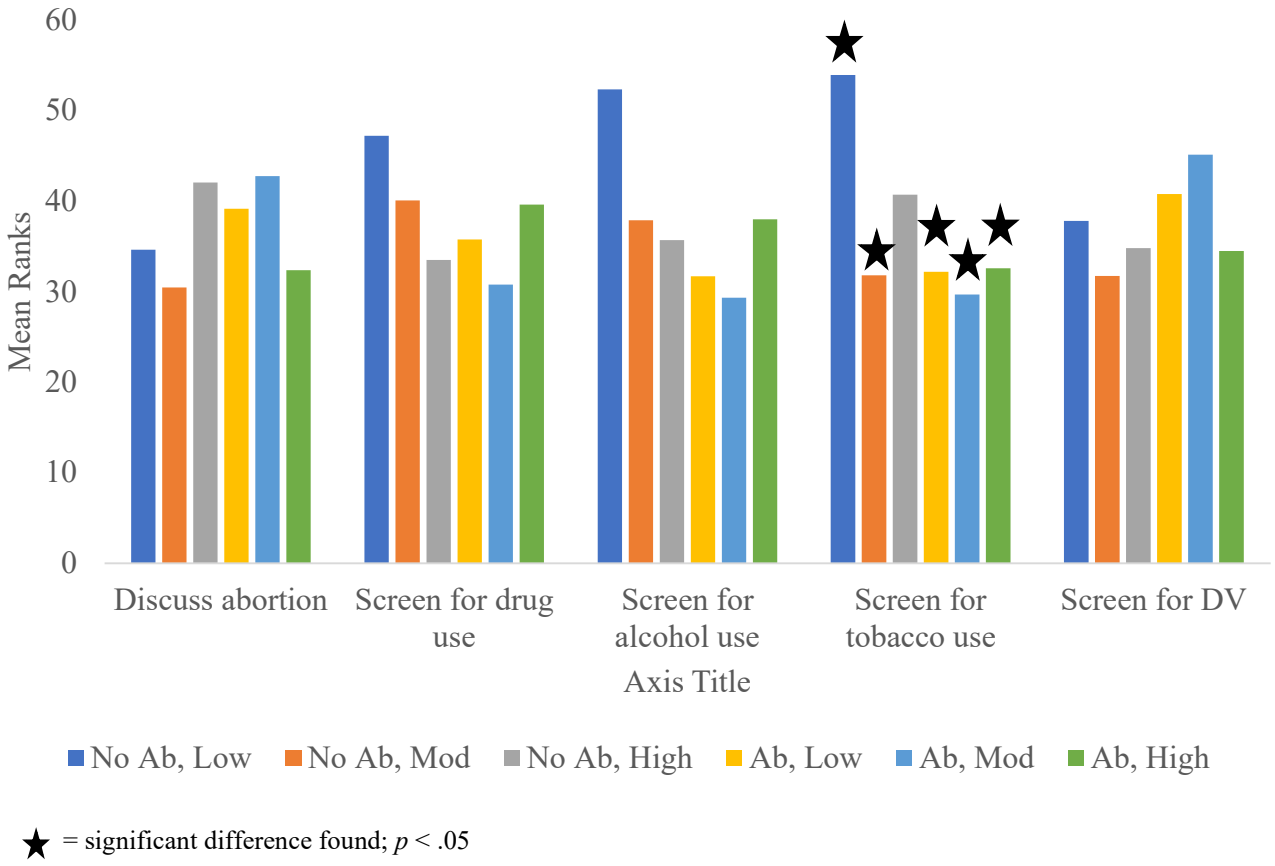
Bar chart of mean ranks by outcome for H2.



★ = significant difference found; $p < .05$

Figure 5

Bar chart of mean ranks by outcome for H3.



★ = significant difference found; $p < .05$

Table 5

Binary logistic regression results for the "To Do" outcome items in H1 based on the interaction of race and racism.

	B	SE(B)	Exp(B)	p	95% CI
Test for STIs	.079	.171	1.083	.643	.774 – 1.514
Test blood/urine for drug use	.265	.253	1.303	.295	.794 – 2.139
Test blood/urine for alcohol	.543	.764	1.722	.477	.385 – 7.694

Table 6

Binary logistic regression results for the "To Do" outcome items in H2 based on the interaction of HIV status and HIV stigma.

	B	SE(B)	Exp(B)	p	95% CI
Test for STIs	-.162	.178	.850	.362	.600 – 1.205
Test blood/urine for drug use	.260	.265	1.296	.327	.771 – 2.180
Test blood/urine for alcohol	14.785	1988.771	2636812.127	.994	.000

Table 7

Binary logistic regression results for the "To Do" outcome items in H3 based on the interaction of abortion status and abortion stigma.

	b	SE(b)	Exp(B)	p	95% CI
Test for STIs	-.039	.190	.962	.839	.662 - 1.397
Test blood/urine for drug use	-.287	.287	.751	.318	.428 – 1.318
Test blood/urine for alcohol	.280	.649	1.313	.666	.371 – 4.720

Table 8

Ordinal logistic regression results for "To Discuss" outcome items for H4 based on race by HIV

	Exp(B)	SE(B)	p	95% CI
Discuss abortion				
W, HIV-	1.627	.644	.012*	.365 – 2.889
W, HIV+	.524	.556	.346	-.566 – 1.614
B, HIV-	.486	.607	.423	-.704 – 1.677
B, HIV+	-	-	-	-
Screen for drug use				
W, HIV-	.347	.609	.569	-.846 – 1.541
W, HIV+	-.406	.550	.460	-1.483 - .671
B, HIV-	.044	.601	.942	-1.134 – 1.221
B, HIV+	-	-	-	-
Screen for alcohol use				
W, HIV-	-.702	.610	.250	-1.898 - .495
W, HIV+	-.578	.550	.293	-1.656 - .499
B, HIV-	-.176	.600	.769	-1.352 - .999
B, HIV+	-	-	-	-
Screen for tobacco use				
W, HIV-	-.656	.608	.281	-1.848 - .536
W, HIV+	-.417	.547	.445	-1.489 - .654
B, HIV-	-.398	.599	.507	-1.572 - .776
B, HIV+	-	-	-	-
Screen for DV				
W, HIV-	-.111	.604	.855	-1.294 – 1.073
W, HIV+	.118	.544	.829	-.949 – 1.184
B, HIV-	-.539	.600	.369	-1.716 - .638
B, HIV+	-	-	-	-

status interaction.

* $p < .05$

Note. No values are available for B, HIV+ because this served as the comparison group.

Table 9

Binary logistic regression results for "To Do" items for H4 based on the interactions of race and HIV status.

	B	SE(B)	Exp(B)	p	95% CI
Test for STIs					
W, HIV-	-	-	-	.086	-
W, HIV+	1.000	.786		.203	.582 – 12.698
B, HIV-	-.524	.658		.426	.163 – 2.151
B, HIV+	1.191	.890		.181	.575 – 18.834
Test blood/urine for drug use					
W, HIV-	-	-	-	.541	-
W, HIV+	-.726	.816	.484	.374	.098 – 2.394
B, HIV-	1.609	1.158	.200	.164	.021 – 1.934
B, HIV+	-19.593	7735.141	.000	.998	.000 - .000
Test blood/urine for alcohol					
W, HIV-	-	-	-	-	-
W, HIV+	-18.067	6893.038	.000	.998	.000
B, HIV-	-18.067	7882.490	.000	.998	.000
B, HIV+	-18.067	7735.141	.000	.998	.000

Note. No values are available for W, HIV- because this served as the comparison group.

Table 10

Ordinal logistic regression results for "To Discuss" outcome items for H5 based on race by abortion status interaction.

	Exp(B)	SE(B)	p	95% CI
Discuss abortion				
W, No Ab	.730	.581	.209	-.409 – 1.868
W, Ab	.272	.554	.624	-.815 – 1.359
B, No Ab	-.101	.587	.863	-1.252 – 1.050
B, Ab	-	-	-	-
Screen for drug use				
W, No Ab	-.337	.337	.561	-1.472 - .799
W, Ab	.006	.000	.992	-1.078 – 1.089
B, No Ab	-.548	.855	.355	-1.710 – .614
B, Ab	-	-	-	-
Screen for alcohol use				
W, No Ab	-1.056	.589	.073	-2.211 - .098
W, Ab	.654	.558	.241	-1.747 - .439
B, No Ab	-1.256	.604	.038*	-2.440 – -.072
B, Ab	-	-	-	-
Screen for tobacco use				
W, No Ab	-1.064	.587	.070	-2.215 - .087
W, Ab	-.418	.553	.450	-1.502 - .666
B, No Ab	-1.384	.605	.022*	-2.570 - -.198
B, Ab	-	-	-	-
Screen for DV				
W, No Ab	.877	.582	.132	-.264 – 2.019
W, Ab	.459	.553	.407	-.624 – 1.542
B, No Ab	.569	.590	.335	-.587 – 1.726
B, Ab	-	-	-	-

* $p < .05$

Note. No values are available for B, Ab because this served as the comparison group.

Table 11

Binary logistic regression results for "To Do" items for H5 based on the interactions of race and abortion status.

	B	SE(B)	Exp(B)	p	95% CI
Test for STIs					
W, No Ab	-	-	-	.494	-
W, Ab	1.099	.864	3.000	.204	.552 – 16.317
B, No Ab	.365	.772	1.440	.637	.317 – 6.535
B, Ab	-.154	.624	.857	.805	.252 – 2.913
Test blood/urine for drug use					
W, No Ab	-	-	-	.745	-
W, Ab	.484	.814	1.623	.552	.329 – 8.002
B, No Ab	-.762	1.191	.467	.522	.045 – 4.819
B, Ab	18.969	7105.180	.000	.998	.000
Test blood/urine for alcohol					
W, No Ab	-	-	-		-
W, Ab	-17.802	7735.141	.000	.998	.000
B, No Ab	-17.802	8770.825	.000	.998	.000
B, Ab	-17.802	7105.180	.000	.998	.000

Note. No values are available for W, No Ab because this served as the comparison group.

Table 12

Ordinal logistic regression results for "To Discuss" outcome items for H6 based on HIV status by abortion status interaction.

	Exp(B)	SE(B)	p	95% CI
Discuss abortion				
HIV-, No Ab	.712	.601	.243	-.483 – 1.907
HIV+, No Ab	.695	.551	.207	-.384 – 1.775
HIV-, Ab	.334	.549	.542	-.741 – 1.410
HIV+, Ab	-	-	-	-
Screen for drug use				
HIV-, No Ab	.131	.609	.830	-1.063 – 1.325
HIV+, No Ab	.419	.551	.448	-.662 – 1.499
HIV-, Ab	-.264	.552	.633	-1.346 - .818
HIV+, Ab	-	-	-	-
Screen for alcohol use				
HIV-, No Ab	-.861	.614	.161	-2.064 - .343
HIV+, No Ab	-.332	.550	.546	-1.410 - .746
HIV-, Ab	-.899	.558	.107	-1.993 - .194
HIV+, Ab	-	-	-	-
Screen for tobacco use				
HIV-, No Ab	-1.330	.622	.033*	-2.549 – -.111
HIV+, No Ab	-.643	.552	.244	-1.724 - .439
HIV-, Ab	-1.126	.561	.045*	-2.226 - -.025
HIV+, Ab	-	-	-	-
Screen for DV				
HIV-, No Ab	.122	.605	.840	-1.063 – 1.308
HIV+, No Ab	-.478	.549	.384	-1.555 - .598
HIV-, Ab	.457	.549	.406	-.620 – 1.534
HIV+, Ab	-	-	-	-

* $p < .05$

Note. No values are available for HIV+, Ab because this served as the comparison group.

Table 13

Binary logistic regression results for "To Do" items for H6 based on the interactions of HIV status and abortion status.

	B	SE(B)	Exp(B)	p	95% CI
Test for STIs					
HIV-, No Ab	-	-	-		-
HIV+, No Ab	.118	.648	1.125	.856	.316 – 4.005
HIV-, Ab	1.216	.774	3.375	.116	.740 – 15.394
HIV+, Ab	1.693	.874	5.437	.053	.981 – 30.147
Test blood/urine for drug use					
HIV-, No Ab	-	-	-	.464	-
HIV+, No Ab	-1.792	1.159	.167	.122	.067 – 1.615
HIV-, Ab	-19.699	7338.199	.000	.998	.000
HIV+, Ab	-.730	.821	.482	.374	.096 – 2.412
Test blood/urine for alcohol					
HIV-, No Ab	-	-	-		-
HIV+, No Ab	-18.158	7595.757	.000	.998	.000
HIV-, Ab	-18.158	7338.199	.000	.998	.000
HIV+, Ab	-18.158	7218.871	.000	.998	.000

Note. No values are available for HIV-, No Ab because this served as the comparison group.

Table 14

Ordinal logistic regression results for "To Discuss" outcome items for H7 based on race by HIV status by abortion status interactions.

	Exp(B)	SE(B)	p	95% CI
Discuss abortion				
W, HIV-, No Ab	1.786	.888	.044*	.045 – 3.526
W, HIV+, No Ab	.631	.791	.425	-.920 – 2.181
W, HIV-, Ab	1.579	.758	.069	-.122 – 3.280
W, HIV+, Ab	.554	.868	.465	-.931 – 2.039
B, HIV-, No Ab	.298	.891	.738	-1.447 – 2.044
B, HIV+, No Ab	.702	.789	.374	-.845 – 2.249
B, HIV-, Ab	.227	.851	.790	-1.442 – 1.895
B, HIV+, Ab	-	-	-	-
Screen for drug use				
W, HIV-, No Ab	.194	.862	.822	-1.495 – 1.883
W, HIV+, No Ab	-.642	.795	.419	-2.199 - .916
W, HIV-, Ab	.296	.844	.726	-1.359 - .1951
W, HIV+, Ab	-.364	.752	.629	-1.838 – 1.111
B, HIV-, No Ab	-.402	.884	.650	-2.135 – 1.331
B, HIV+, No Ab	.117	.788	.881	-1.426 - .1661
B, HIV-, Ab	-.246	.855	.774	-1.921 – 1.430
B, HIV+, Ab	-	-	-	-
Screen for alcohol use				
W, HIV-, No Ab	-1.082	.868	.213	-2.784 - .620
W, HIV+, No Ab	-1.324	.803	.099	-2.898 - .251
W, HIV-, Ab	-1.268	.853	.137	-2.941 - .404
W, HIV+, Ab	-.686	.755	.363	-2.166 – 794
B, HIV-, No Ab	-1.288	.892	.149	-3.037 - .462
B, HIV+, No Ab	-.320	.789	.686	-1.866 – 1.227
B, HIV-, Ab	-1.171	.863	.175	-2.863 - .520
B, HIV+, Ab	-	-	-	-
Screen for tobacco use				
W, HIV-, No Ab	-1.479	.874	.090	-3.191 - .233

W, HIV+, No Ab	-1.488	.806	.065	-3.067 - .091
W, HIV-, Ab	-1.245	.852	.144	-2.915 - .426
W, HIV+, Ab	-.632	.754	.402	-2.110 - .846
B, HIV-, No Ab	-1.839	.901	.041*	-3.605 - -.073
B, HIV+, No Ab	-.806	.792	.309	-2.358 - .747
B, HIV-, Ab	-1.456	.866	.093	-3.154 - .242
B, HIV+, Ab	-	-	-	-
Screen for DV				
W, HIV-, No Ab	-.453	.857	.598	-2.133 – 1.228
W, HIV+, No Ab	.458	.787	.561	-1.085 – 2.001
W, HIV-, Ab	-.276	.838	.742	-1.920 – 1.367
W, HIV+, Ab	-.467	.748	.532	-1.933 - .998
B, HIV-, No Ab	.040	.877	.964	-1.678 – 1.758
B, HIV+, No Ab	-1.394	.799	.081	-2.961 - .173
B, HIV-, Ab	-.464	.850	.585	-2.130 – 1.201
B, HIV+, Ab	-	-	-	-

* $p < .05$

Note. No values are available for B, HIV+, Ab because this served as the comparison group.

Table 15

Binary logistic regression results for "To Do" items for H7 based on the interactions of race, HIV status, and abortion status.

	B	SE(B)	Exp(B)	p	95% CI
Test for STIs					
W, HIV-, No Ab	-	-	-	.320	-
W, HIV+, No Ab	1.099	.957	3.000	.251	.459 - 19.592
W, HIV-, Ab	1.281	1.209	3.600	.289	.337 - 38.477
W, HIV+, Ab	1.856	1.188	6.400	.118	.623 - 65.739
B, HIV-, No Ab	.182	1.008	1.200	.857	.166 - 8.659
B, HIV+, No Ab	-.223	.775	.800	.773	.175 - 3.651
B, HIV-, Ab	1.569	1.197	4.800	.190	.459 - 50.155
B, HIV+, Ab	1.649	1.195	5.200	.168	.500 - 54.050
Test for drug use					
W, HIV-, No Ab	-	-	-	.999	-
W, HIV+, No Ab	-19.904	9748.227	.000	.998	.000
W, HIV-, Ab	-.898	1.239	.407	.469	.036 – 4.621
W, HIV+, Ab	-.241	.901	.786	.791	.132 – 4.680
B, HIV-, No Ab	-.647	1.252	.524	.605	.045 – 6.092
B, HIV+, No Ab	-19.904	9473.574	.000	.998	.000
B, HIV-, Ab	-19.904	11147.524	.000	.998	.000
B, HIV+, Ab	-19.904	10742.023	.000	.998	.000
Test for alcohol use					
W, HIV-, No Ab	-	-	-	1.000	-
W, HIV+, No Ab	-18.638	9748.227	.000	.998	.000
W, HIV-, Ab	-18.638	12710.133	.000	.998	.000
W, HIV+, Ab	-18.638	9748.227	.000	.998	.000
B, HIV-, No Ab	-18.638	14210.361	.000	.999	.000
B, HIV+, No Ab	-18.638	9473.574	.000	.998	.000
B, HIV-, Ab	-18.638	11147.524	.000	.999	.000
B, HIV+, Ab	-18.638	10742.023	.000	.999	.000

Note. No values are available for W, HIV-, No Ab because this served as the comparison group.

APPENDIX A

RESEARCH PARTICIPANT INFORMATION AND CONSENT FORM

STUDY TITLE: Prenatal Care Decisions among Healthcare Students
VCU INVESTIGATOR: Alison J. Patev
Kristina B. Hood
SPONSOR: This research is funded by the Society for Health Psychology (APA Div. 38)

ABOUT THIS CONSENT FORM

You are being invited to participate in a research study. **It is important that you carefully think about whether being in this study is right for you and your situation.** This consent form is meant to assist you in thinking about whether or not you want to be in this study. **Please ask the investigator or the study staff to explain any information in this consent document that is not clear to you.** Your participation is voluntary. You may decide not to participate in this study. If you do participate, you may withdraw from the study at any time. Your decision not to take part or to withdraw will involve no penalty or loss of benefits to which you are otherwise entitled.

AN OVERVIEW OF THE STUDY AND KEY INFORMATION

Why is this study being done?

The purpose of this research study is to explore how healthcare students make decisions about provision of prenatal care. While there is much research exploring what makes up appropriate prenatal care, and the benefits of prenatal care, less research has explored factors that influence how students and providers make choices about the prenatal care they provide. This research will help us better understand provision of prenatal care, and can inform future training for students.

What will happen if I participate?

If you consent to participate in this study, you will view a patient's chart and make decisions about which items to prioritize in their prenatal care. You will also complete a survey asking a number of questions about your personal views and characteristics. Your participation in this study will last up to an hour. Approximately 214 individuals will participate in this study.

What are the risks and benefits of participating?

There are minimal risks and benefits of participating in this study.

Risks and Discomforts	Benefits to You and Others

• Participation in research might involve some loss of privacy if you do not complete this study in a private location. We encourage you to complete this study somewhere private, so others do not see your responses. • Throughout the study, you will respond to some questions that reflect your views and ideas. In doing this, you may realize things about yourself that are uncomfortable or upsetting. Although this is unlikely, we will provide you with some resources at the end of the study in case you experience any discomfort in this study.	Beyond the financial compensation, this study does not have any direct benefits to you. However, you can feel good knowing that you are helping to advance research in the area of prenatal care. This research may help the investigators understand how to better train students and improve the provision of prenatal care.

WILL I BE PAID TO PARTICIPATE IN THE STUDY?

For your time and effort, you will be compensated with a $10 Amazon gift card, sent to your email within 72 hours after completion of this study.

CAN I STOP BEING IN THE STUDY?

You can stop being in this research study at any time. Leaving the study will not affect your medical care, employment status, or academic standing.

HOW WILL INFORMATION ABOUT ME BE PROTECTED?

VCU and the VCU Health System have established secure research databases and computer systems to store information and to help with monitoring and oversight of research. Your information may be kept in these databases but are only accessible to individuals working on this study or authorized individuals who have access for specific research related tasks.

Identifiable information in these databases are not released outside VCU unless stated in this consent or required by law. Although results of this research may be presented at meetings or in publications, identifiable personal information about participants will not be disclosed.

Personal information about you might be shared with or copied by authorized representatives from the following organizations for the purposes of managing, monitoring and overseeing this study:

- The study Sponsor, representatives of the sponsor and other collaborating organizations

In general, we will not give you any individual results from the study. In the future, identifiers (e.g., your email address) will be removed from the information and samples you provide in this study, and after that removal, the information/samples could be used for other research studies by this study team or another researcher without asking you for additional consent.

WHOM SHOULD I CONTACT IF I HAVE QUESTIONS ABOUT THE STUDY?

The investigator and study staff named below are the best person(s) to contact if you have any questions, complaints, or concerns about your participation in this research:

Kristina Hood, Ph.D.

hoodkb@vcu.edu

and/or

Alison Patev, M.S.

patevaj@mymail.vcu.edu

If you have general questions about your rights as a participant in this or any other research, or if you wish to discuss problems, concerns or questions, to obtain information, or to offer input about research, you may contact:

Virginia Commonwealth University Office of Research
800 East Leigh Street, Suite 3000, Box 980568, Richmond, VA 23298
(804) 827-2157; https://research.vcu.edu/human_research/volunteers.htm

Do not respond to this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

STATEMENT OF CONSENT

I have been provided with an opportunity to read this consent form carefully. All of the questions that I wish to raise concerning this study have been answered. By consenting to participate in this study, I have not waived any of the legal rights or benefits to which I otherwise would be entitled. My selection below indicates that I freely consent to participate in this research study. Please save a copy of this consent form for your records.

Please select an option below regarding whether you consent to participate or not.

- o I CONSENT TO PARTICIPATE IN THIS STUDY
- o I **DO NOT** CONSENT TO PARTICIPATE IN THIS STUDY

APPENDIX B

Recruitment Email

Hello,

My name is Alison Patev, and I am currently a fifth-year doctoral candidate at Virginia Commonwealth University working on my dissertation research project. I was hoping for your assistance with recruitment of medical, nursing practitioner, or PA students who have reached their clinical years.

My project is exploring how healthcare professional students make decisions about care items during prenatal care visits. Students will read a patient vignette and make decisions about care during a visit, as well as complete a survey about personal characteristics; they will be paid $10 for completion of the full survey. This work has important implications for the provision of equitable care, as well as the training of healthcare students. The survey is not expected to take more than an hour.

Here is the link for any interested students: https://vcupsych.co1.qualtrics.com/jfe/form/SV_bpwH9AARH3t0kJf

Any help that you can provide at this time would be greatly appreciated. Please let me know if you have any questions (patevaj@ vcu.edu).

Thank you,

Alison Patev

APPENDIX C

Recruitment Flyers

MEDICAL STUDENTS!


We invite participants for a dissertation on providing patient care!

Compensation is available for responding to an online survey, which will take less than an hour of your time.

All participants must be 18+ years of age, currently enrolled in medical school, and able to read and respond in English

Interested? Take a link below.

If you have questions, please contact Alison Patev at patevaj@mymail.vcu.edu

NURSE PRACTITIONER STUDENTS!


We invite participants for a dissertation on providing patient care!

Compensation is available for responding to an online survey, which will take less than an hour of your time.

All participants must be 18+ years of age, currently enrolled in VCU's NP program, and able to read and respond in English

Interested? Take a link below.

If you have questions, please contact Alison Patev at patevaj@mymail.vcu.edu

PHYSICIAN ASSISTANT STUDENTS!


We invite participants for a dissertation on providing patient care!

Compensation is available for responding to an online survey, which will take less than an hour of your time.

All participants must be 18+ years of age, currently enrolled in a PA program, in clinical years, and able to read and respond in English

Interested? Here is the link: https://vcupsych.co1.qualtrics.com/jfe/form/SV_bpwH9AARH3tokJf

If you have questions, please contact Alison Patev at patevaj@mymail.vcu.edu

APPENDIX D

Patient Vignettes

Directions: You have just finished talking with your first patient of the day, and now have to move on to your next patient. Your first appointment ran over, and you only have two minutes to review information about your next patient, who is coming in for her first prenatal care visit. Please read the following patient information carefully, but quickly, as you only have two minutes to view her information, choose, and prioritize items to discuss in her fifteen-minute visit. Keep in mind that you will only have enough time to cover two or three items from each list.

>>> * NEXT PAGE *****

Pictures and items highlighted in yellow will be randomized for participants.

A 28-year-old G2P0010/G1P000 at eight weeks 2 days gestation by an eight-week ultrasound consistent with her LMP presents to you for a first prenatal care visit. *Her surgical history is notable for one dilation and evacuation for a 13-week abortion two years ago*. She has never had a miscarriage or stillbirth. She has been experiencing mild nausea and regular vomiting. There is no known history of birth defects in her family. She *takes no medications/ takes_____ and*

_____ *as treatment for HIV.* She was not using any contraceptive method at the time of pregnancy. She was previously diagnosed with endometriosis. She has no allergies to medication that she is aware of but does report mild seasonal allergies. She exercises 2.5 hours per week on average.

APPENDIX E

Prioritization of Care Items

In the appointment, the patient informs you that she has to be at work directly after her appointment, and does not have long for testing. Based on the previous vignette, please choose **three** items you will order for this patient.

__ Test for sexually transmitted infections

__ A complete blood count

__ Hepatitis B antigen test

__ Screen for gestational diabetes

__ Prenatal vitamins

__ Prescription of iron supplements

__ Test urine or blood for the presence of drugs such as opioids or cocaine

__ Test urine or blood for the presence of alcohol

__ Test urine or blood for the presence of tobacco

Based on the previous vignette, please rank in order from what you would cover first to what you would cover last, the items you will discuss with this patient during her fifteen-minute visit today.

Discuss options, including having an abortion

Discuss options, including placing the baby for adoption

Counseling on options for aneuploidy screening

Exercise for 150 minutes per week

Counseling about nutrition

Screen for past and present for drug use using a validated tool

Screen for past and present for alcohol use using a validated tool

Screen for past and present for tobacco use using a validated tool

General anticipatory guidance about pregnancy

Screening for intimate partner violence using a validated tool

Screening for depression using a validated tool

APPENDIX F

Inclusion Criteria Screening Questions

1. Please note that due to the nature of this software used in this study, you can only complete the survey on a personal computer, laptop, or tablet. If you are using a mobile phone, you will be unable to complete the survey. What device are you taking this survey on?
    a. Mobile phone
    b. Computer (laptop or PC)
    c. Tablet/iPad
2. What is your year of birth? _____
3. Are you able to read and respond in English?
    a. Yes
    b. No
4. Which program are you currently enrolled in? _____
5. Are you currently in the clinical phase of your program?
    a. Yes
    b. No

APPENDIX G

Qualitative Assessment of Patient

Please write a summary of this patient as you might write a summary for your supervisor.

_____
_____
_____
_____
_____
_____
_____

APPENDIX H

Validity Check Items

1. In the chart you just read, what race was the patient?
    a. Black
    b. White

2. In the scenario you just read, had the patient ever had an abortion?
    a. Yes
    b. No

3. In the chart you just read, did the patient have HIV?
    a. Yes
    b. No

4. Sometimes, people read the questions, but do not do so carefully. To ensure you're paying careful attention, please answer this question with "green." What color is the sky?
    a. Blue
    b. Green
    c. Red
    d. Orange

5. What do you think the purpose of this study was?

    _____

    _____

    _____

APPENDIX I

Moral Perceptions of Patient Items

For the patient whose information you read, check which questions you might be likely to ask the patient.

Which of the following questions are you likely to ask this woman:

__ How many sexual partners she has had?

__ Has she ever had a sexually transmitted infection?

__ How many other children does she have?

__ Do you currently have a romantic partner?

__ Are you interested in using birth control in the future?

__ Do you think you will have the resources necessary to provide for this child?

__ Are you considering putting the child up for adoption?

__ Are you considering an induced abortion?

__ Are you currently receiving public assistance (i.e., welfare)?

__ Was this pregnancy planned or unplanned?

__ Do you work at a dangerous job?

For the woman living with HIV:

__ *How she was infected with HIV?*

__ *Is she concerned about passing HIV to her child?*

Moral Judgments of Patient Scale

(adapted from Tappin & McKay, 2017)

To what extent do you think this patient is…

1	2	3	4	5	6	7
Not at all						Very much so

1. Hard working

2. Knowledgeable
3. Competent
4. Creative
5. Determined
6. Lazy
7. Undedicated
8. Unintelligent
9. Unmotivated
10. Illogical
11. Sociable
12. Cooperative
13. Warm
14. Family oriented
15. Easy going
16. Cold
17. Disagreeable
18. Rude
19. Humorless
20. Uptight
21. Honest
22. Trustworthy
23. Fair
24. Respectful
25. Principled
26. Insincere
27. Prejudiced
28. Disloyal
29. Manipulative
30. Deceptive

APPENDIX J

Ambivalent Sexism Inventory

22 Items

Glick & Fiske, 1996

Below is a series of statements concerning men and women and their relationships in contemporary society. Please indicate the degree to which you agree or disagree with each statement using the following

0	1	2	3	4	5
Disagree Strongly					Agree Strongly

1. No matter how accomplished be is, a man is not truly complete as a person unless he has the love of a woman.

2. Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for "equality."

3. In a disaster, women ought not necessarily to be rescued before men.

4. Most women interpret innocent remarks or acts as being sexist.

5. Women are too easily offended.

6. People are often truly happy in life without being romantically involved with a member of the other sex.

7. Feminists are not seeking for women to have more power than men.

8. Many women have a quality of purity that few men possess.

9. Women should be cherished and protected by men.

10. Most women fail to appreciate fully all that men do for them.

11. Women seek to gain power by getting control over men.

12. Every man ought to have a woman whom he adores.

13. Men are complete without women.

14. Women exaggerate problems they have at work.

15. Once a woman gets a man to commit to her, she usually tries to put him on a tight leash.

16. When women lose to men in a fair competition, they typically complain about being discriminated against.

17. A good woman should be set on a pedestal by her man.

18. There are actually very few women who get a kick out of teasing men by seeming sexually available and then refusing male advances.

19. Women, compared to men, tend to have a superior moral sensibility.

20. Men should be willing to sacrifice their own well-being in order to provide financially for the women in their lives.

21. Feminists are making entirely reasonable demands of men.

22. Women, as compared to men, tend to have a more refined sense of culture and good taste.

APPENDIX K

Symbolic Racism Scale

(Henry & Sears, 2002)

1	2	3	4
Strongly Agree	Somewhat agree	Somewhat disagree	Strongly Disagree

1. It's really a matter of some people not trying hard enough; if blacks would only try harder they could be just as well off as whites. (1, strongly agree; 2, somewhat agree; 3, somewhat disagree; 4, strongly disagree)
2. Irish, Italian, Jewish, and many other minorities overcame prejudice and worked their way up. Blacks should do the same.
3. Generations of slavery and discrimination have created conditions that make it difficult for blacks to work their way out of the lower class. (1, strongly agree; 2, somewhat agree; 3, somewhat disagree; 4, strongly disagree)
4. Over the past few years,blacks have gotten less than they deserve.(1,strongly agree; 2, somewhat agree; 3, somewhat disagree; 4, strongly disagree)
5. Over the past few years, blacks have gotten more economically than they deserve. (1, strongly agree; 2, somewhat agree; 3, somewhat disagree; 4, strongly disagree)

1	2	3
Trying to push Too fast	Going too slowly	Moving at about the right speed

6. Some say that black leaders have been trying to push too fast. Others feel that they haven't pushed fast enough. What do you think? (1, trying to push too fast; 2, going too slowly; 3, moving at about the right speed)

1	2	3	4
All of it	Most of it	Some of it	None of it

7. How much of the racial tension that exists in the United States today do you think blacks are responsible for creating? (1, all of it; 2, most; 3, some; 4, not much at all)

1	2	3	4
A lot	Some	Just a little	None at all

8. How much discrimination against blacks do you feel there is in the United States today, limiting their chances to get ahead? (1, a lot; 2, some; 3, just a little; 4, none at all)

APPENDIX L

Stigmatizing Attitudes Toward People Living with HIV/AIDS Scale

(Beaulieu, Adrien, Potvin, & Dassa, 2014)

1 2 3 4

Strongly disagree Strongly Agree

1. Being around someone who has HIV/AIDS does not bother me.
2. I would not be worried for my health if a co-worker had HIV/AIDS.
3. It would not bother me if there was a boarding house for people with HIV/AIDS on my street.
4. I could not be friends with someone who has HIV/AIDS.*
5. I would limit my contact with a person whom I know is infected with HIV/AIDS.*
6. I would not hug someone with HIV/AIDS.*
7. People who use injectable drugs deserve to have HIV/AIDS.*
8. My support for a person living with HIV/AIDS depends on how the person was infected.*
9. I am disgusted by persons who were infected during homosexual relations.*
10. People who are infected with the HIV/AIDS virus because they have not used a condom deserve what they get.*
11. People with HIV/AIDS have only themselves to blame.*
12. Most people with HIV/AIDS are responsible for having their illness.*
13. To fight HIV/AIDS, it is necessary that young people not have sex.*
14. Reinforcement of traditional sexual values will help to control HIV/AIDS.*
15. The arrival of HIV/AIDS is linked to the fact that people have more sexual freedom.*
16. The spread of HIV/AIDS is linked to the decline of moral values.*
17. People who have AIDS should have the right to work serving the public, as waiters-waitresses, cooks, hairdressers, etc.
18. Children who are infected with HIV/AIDS should be able to go to day-care.
19. Doctors with HIV/AIDS should be allowed to go on working with their patients.
20. People infected with HIV/AIDS should be allowed to immigrate to Canada.
21. If I had a roommate and discovered he was infected with HIV/AIDS, it would not bother me.
22. I have the right to know if someone around me is infected with HIV/AIDS.*
23. When a screening test indicates that someone is infected with HIV/AIDS, the result should remain confidential.
24. Doctors should report the names of people with HIV/AIDS to the government.*
25. Transmitting the HIV/AIDS virus should be punishable by law.*
26. People who know they are infected with HIV/AIDS and who transmit the virus are criminals.*
27. Transmitting HIV/AIDS is a crime.*

APPENDIX M

Stigmatizing Attitudes, Beliefs, and Actions Scale

(Shellenberg et al., 2014)

Please indicate how much you agree or disagree with the following statements:

1	2	3	4	5
Strongly Disagree	**Disagree**	**Unsure**	**Agree**	**Strongly Agree**

Negative Stereotyping SABAS items

1. A woman who has an abortion is committing a sin.
2. Once a woman has one abortion, she will make it a habit.
3. A woman who has had an abortion cannot be trusted.
4. A woman who has an abortion brings shame to her family.
5. The health of a woman who has an abortion is never as good as it was before the abortion.
6. A woman who has had an abortion might encourage other women to get abortions.
7. A woman who has an abortion is a bad mother.
8. A woman who has an abortion brings shame to her community.

Exclusion and discrimination SABAS items

9. A woman who has had an abortion should be prohibited from going to religious services.
10. I would tease a woman who has had an abortion so that she will be ashamed about her decision.
11. I would try to disgrace a woman in my community if I found out she'd had an abortion.
12. A man should not marry a woman who has had an abortion because she may not be able to bear children.
13. I would stop being friends with someone if I found out that she had an abortion.
14. I would point my fingers at a woman who had an abortion so that other people would know what she has done.
15. A woman who has an abortion should be treated the same as everyone else.
16. Sometimes, people read the questions, but do not do so carefully. To ensure you're paying careful attention, please select "Disagree" for this item.

Fear of contagion SABAS items

17. A woman who has an abortion can make other people fall ill or get sick.
18. A woman who has an abortion should be isolated from other people in the community for at least 1 month after having an abortion.
19. If a man has sex with a woman who has had an abortion, he will become infected with a disease.

APPENDIX N

Attitudes about Abortion-Providing Physicians Scale

(Martin et al., 2020)

1	2	3	4	5
Strongly Disagree		Neither agree nor Disagree		Strongly Agree

1. Abortion providers provide necessary care for women.
2. Abortion providers make a positive contribution to society.
3. If my child became a physician, I would be proud if they offered abortion services.
4. Abortion providers are heroes.
5. I would be happy to help if an abortion provider calls me for consultation about a mutual patient seeking abortion care.
6. I would be happy to help if an abortion provider calls me for consultation about a patient that I do not know who is seeking abortion care.
7. I do not wish to play a consultant role in the care of any woman seeking abortion care.*
8. I am suspicious of the motivations of abortion providers.*
9. I think that abortion providers should be ashamed of their work.*
10. Abortion providers who work in free-standing clinics (e.g., Planned Parenthood) are generally unskilled physicians.*
11. I am more likely to forgive a medical error by a general surgeon than by a physician who performs abortions.*
12. I see more complications from abortion than I would expect if it is as safe as data suggest.*
13. My sense is that complications from abortion are more common than those from miscarriage treatment.*

For the next six items, use the following response options:

1	2	3
More	Equally	Less

Compared with most other doctors, abortion providers…

care _____ deeply for their patients.

are _____ concerned for their patients' safety.

are _____ motivated by their conscience to do their work.

are _____ motivated by money

Compared with most other doctors, abortion providers…

are _____ competent physicians

are _____ technically skilled

are _____ well-trained to do the work they do.

APPENDIX O

Abortion Misinformation Items

(adapted from Kavanaugh et al., 2014; Littman et al., 2014)

9 items

1	2	3	4	5	6	7
Strongly Disagree			Neutral			Strongly Agree

1. Having an abortion is less dangerous than childbirth.*
2. Women are more likely to die from abortion complications than childbirth complications.
3. Women who have an abortion are likely to regret their decision.
4. Women who have an abortion are likely to suffer from depression, post-traumatic stress, and other negative psychological outcomes.
5. Women who seek abortions feel shame and guilt about their choice.
6. Women who have abortions often feel relieved afterwards.*
7. Having an abortion increases a woman's chance of developing breast cancer.
8. Having an abortion makes it more difficult for a woman to become pregnant again.
9. Abortion increases the risk of pre-term birth in future pregnancies.

Updated Abortion Misinformation Questions (2/2020; based on Berglas et al., 2017; Bessett et al., 2015; Kaiser Family Foundation, 2019)

1. What percentage of women will have an abortion by age 45?
    a. 40%
    b. 32%
    c. 24%*
    d. 10%
    e. Don't know/Unsure

2. When are most abortions typically performed?
    a. First trimester (at or before 13 weeks)*
    b. Second trimester (at or before 21 weeks)
    c. Third trimester (after 21 weeks)

   d. Don't know/Unsure

3. What percentage of abortions occur in the third trimester (at or after 21 weeks) of pregnancy?
   a. 10%
   b. 8%
   c. 5%
   d. 1.2%*
   e. Don't know/Unsure

4. Abortion during the first two trimesters of pregnancy (up to ~20 - 24 weeks) is legal in the United States.
   a. True*
   b. False
   c. Don't know/Unsure

5. As a result of Roe v. Wade, are abortions legal in all cases, or are there still some cases in which abortion is illegal?
   a. Abortion is legal in all cases
   b. There are still some cases in which abortion is illegal
   c. Don't know/unsure

6. There are three legal abortion procedures.
   a. True*
   b. False
   c. Don't know/Unsure

7. In-clinic abortions take _____ minutes, on average.
   a. 55 - 60
   b. 30 - 35
   c. 5 - 10*
   d. 1 - 2
8. The medication abortion (the "abortion pill") is 99% effective at any point during pregnancy.
   a. True
   b. False*
   c. Don't know/Unsure

9. Medication abortion (the "abortion pill") consists of two different medications.
   a. True*
   b. False
   c. Don't know/Unsure

10. Medication abortion ("the abortion pill") can take up to 48 hours to occur
    a. True*
    b. False
    c. Don't know/Unsure

11. The "morning after" pill (emergency contraception) is the same as the abortion pill.
    a. True
    b. False*
    c. Don't know/unsure

12. The "morning after" pill (emergency contraception) can end a pregnancy in the early stages.
    a. True
    b. False*
    c. Don't know/Unsure
13. Most women who have abortions do not already have other children.
    a. True
    b. False
    c. Don't know/unsure

14. Most women who have abortions are not in romantic relationships.
    a. True
    b. False
    c. Don't know/unsure

15. Most women who have abortions are not religiously affiliated.
    a. True
    b. False*
    c. Don't know/Unsure

16. Is abortion safer than, less safe than, or about as safe as…

Safer than	About as safe	Less safe than
	Giving birth	
	Getting wisdom teeth removed	
	Getting tonsils removed	
	Getting appendix removed	

APPENDIX P

Social Dominance Orientation

(Pratto, Sidanius, Stallworth, & Malle, 1994)

16 items

1	2	3	4	5	6	7
Very Negative						Very Positive

1. Some groups of people are simply inferior to other groups.
2. In getting what you want, it is sometimes necessary to use force against other groups.
3. It's OK if some groups have more of a chance in life than others.
4. To get ahead in life, it is sometimes necessary to step on other groups.
5. If certain groups stayed in their place, we would have fewer problems.
6. It's probably a good thing that certain groups are at the top and other groups are at the bottom.
7. Inferior groups should stay in their place.
8. Sometimes other groups must be kept in their place.
9. It would be good if groups could be equal.
10. Group equality should be our ideal.
11. All groups should be given an equal chance in life.
12. We should do what we can to equalize conditions for different groups.
13. Increased social equality.
14. We would have fewer problems if we treated people more equally.
15. We should strive to make incomes as equal as possible.
16. No one group should dominate in society.

APPENDIX Q

12-Item Social and Economic Conservatism Scale

Everett, 2013

Feeling Thermometer (allow increments of 10)

0 ---------- 100

1. Abortion (reverse scored).
2. Welfare benefits (reverse scored).
5. Limited government.
6. Military and national security.
7. Religion.
8. Gun ownership.
9. Traditional marriage.
10. Traditional values.
11. Fiscal responsibility.
12. Business.
13. The family unit.
14. Patriotism.

APPENDIX R

Duke University Religion Index (DUREL)

Koenig & Bussing, 2010

5 items

(1) How often do you attend church or other religious meetings? (ORA)

1 - Never; 2 - Once a year or less; 3 - A few times a year; 4 - A few times a month; 5 - Once a week;

6 - More than once/week

(2) How often do you spend time in private religious activities, such as prayer, meditation or Bible study? (NORA)

1 - Rarely or never; 2 - A few times a month; 3 - Once a week; 4 - Two or more times/week; 5 - Daily;

6 - More than once a day

The following section contains 3 statements about religious belief or experience. Please mark the extent to which each statement is true or not true for you.

(3) In my life, I experience the presence of the Divine (i.e., God) - (IR)

1 - Definitely not true; 2 - Tends not to be true; 3 - Unsure; 4 - Tends to be true; 5 - Definitely true of me

(4) My religious beliefs are what really lie behind my whole approach to life - (IR)

1 - Definitely not true; 2 - Tends not to be true; 3 - Unsure; 4 - Tends to be true; 5 - Definitely true of me

(5) I try hard to carry my religion over into all other dealings in life - (IR)

1 - Definitely not true; 2 - Tends not to be true; 3 - Unsure; 4 - Tends to be true; 5 - Definitely true of me

APPENDIX S

Surveillance of Pregnant Women Items

"Generally, pregnant women should not…"

1. Ingest alcohol
2. Ingest caffeine
3. Consume cheese
4. Consume sushi
5. Take hot baths
6. Use a hot tub or sauna
7. Take pain relief medication
8. Get an epidural
9. Exercise at all
10. Fly on an airplane at any point in her pregnancy
11. Use herbal supplements
12. Use tobacco
13. Use pesticides
14. Walk in tall grass
15. Change a cat's litter box
16. Pet cats
17. Ride a bicycle during her pregnancy
18. Listen to loud music
19. Have sex during pregnancy
20. Eat hot dogs
21. Dye her hair
22. Sleep on their sides
23. Sleep on their backs
24. Eat spicy foods
25. Do yoga
26. Go hiking
27. Use artificial sweeteners (e.g., Splenda)
28. Consume fish
29. Use insect repellant
30. Wear high heels
31. Use skin care products
32. Raise their arms above their heads
33. Drink diet sodas
34. Get a bikini wax
35. Do gardening or other yard work
36. Eat chocolate or other sweets

APPENDIX T

Evaluative Priming Procedure – Implicit Bias Measures

(Fazio et al., 1995)

Prime words (based on Olsen & Fazio, 2006)

Positive prime words: magnificent, amazing, fabulous, delightful, excellent, outstanding, exciting, fantastic, terrific, awesome, enjoyable, wonderful

Negative prime words: horrible, annoying, repulsive, appalling, disgusting, sickening, worthless, awful, dreadful, terrible, saddening, upsetting

Target Words

Race

Black, African American, Black person

White, Caucasian, White person

HIV

HIV+, human immunodeficiency virus

HIV-

Abortion

Abortion, pregnancy termination, medication abortion, surgical abortion

Birth, Baby, Child, Life

APPENDIX U

Personal Attributes Questionnaire (PAQ)

21 Items

Spence, Helmreich & Stapp, 1973

Instructions:

The items below inquire about what kind of person you think WOMEN are. Each item consists of a PAIR of characteristics, with the letters A-E in between. For example,

Not at all artistic A.....B.....C.....D.....E Very artistic

Each pair describes contradictory characteristics - that is, women cannot be both at the same time, such as very artistic and not at all artistic.

The letters form a scale between the two extremes. You are to chose a letter which describes where WOMEN fall on the scale. For example, if you think that women have no artistic ability, you would choose A. If you think that women are pretty good, you might choose D. If women are only medium, you might choose C, and so forth.

M-F	1.	Not at all aggressive	A.....B.....C.....D.....E	Very aggressive*
M	2.	Not at all independent	A.....B.....C.....D.....E	Very independent*
F	3.	Not at all emotional	A.....B.....C.....D.....E	Very emotional*
M-F	4.	Very submissive	A.....B.....C.....D.....E	Very dominant*
M-F	5.	Not at all excitable in a major crisis*	A.....B.....C.....D.....E	Very excitable in a major crisis
M	6.	Very passive	A.....B.....C.....D.....E	Very active*
F	7.	Not at all able to devote self completely to others	A.....B.....C.....D.....E	Able to devote self completely to others*
F	8.	Very rough	A.....B.....C.....D.....E	Very gentle*
F	9.	Not at all helpful to others	A.....B.....C.....D.....E	Very helpful to others*
M	10.	Not at all competitive	A.....B.....C.....D.....E	Very competitive*
M-F	11.	Very home oriented	A.....B.....C.....D.....E	Very worldly*
F	12.	Not at all kind	A.....B.....C.....D.....E	Very kind*
M-F	13.	Indifferent to others= approval*	A.....B.....C.....D.....E	Highly needful of others' approval
M-F	14.	Feelings not easily hurt*	A.....B.....C.....D.....E	Feelings easily hurt
F	15.	Not at all aware of feelings of others	A.....B.....C.....D.....E	Very aware of feelings of others*
M	16.	Can make decisions easily*	A.....B.....C.....D.....E	Has difficulty making decisions
M	17.	Gives up very easily	A.....B.....C.....D.....E	Never gives up easily*
M-F	18.	Never cries*	A.....B.....C.....D.....E	Cries very easily
M	19.	Not at all self-confident	A.....B.....C.....D.....E	Very self-confident*
M	20.	Feels very inferior	A.....B.....C.....D.....E	Feels very superior*

F	21.	Not at all understanding of others	A.....B.....C.....D.....E	Very understanding of others*

F 22. Very cold in relations with others
M-F 23. Very little need for security*
M 24. Goes to pieces under pressure

A.....B.....C.....D.....E Very warm in relations with others*
A.....B.....C.....D.....E Very strong need for security
A.....B.....C.....D.....E Stands up well under pressure*

The scale to which each item is assigned is indicated by M (Masculinity), F (Femininity) and M-F (Masculinity-Femininity)
Items with an asterisk indicate the extreme masculine response for the M and M-F scales and the extreme feminine response for the F scale. Each extreme masculine response on the M and M-F scales and the extreme feminine response on the F scale are scored 4, the next most extreme scored 3, etc.
Spence, J. T., Helmreich, R. L., & Holahan, C. K. (1979) Negative and positive components of psychological masculinity and femininity and their relationships to self-reports of neurotic and acting out behaviors. *Journal of Personality and Social Psychology, 37*, 1673-1682.

APPENDIX V

Demographics

14 Items

1. Age ___

2. What is your biological sex?
    a. Male
    b. Female

3. With which gender do you identify?
    a. Man
    b. Woman
    c. Non-binary
    d. Something not listed here

4. Race?
    a. African-American
    b. Hispanic/Latino
    c. Asian-American
    d. Caucasian/White
    e. Other

5. What type of professional school are you in?
    a. Medical school
    b. Nursing school
    c. Physician assistant program

<<Based on response to #5>>

6. What year of medical school are you in?
    a. M3
    b. M4

7. What nursing program are you in?
    a. Traditional B.S.
    b. Accelerated B.S.
    c. RN to B.S.
    d. Master's
    e. Doctoral

8. What year of your nursing program are you in?
    a. 1
    b. 2
    c. 3
    d. 4

e. 5+

9. What year of your PA program are you in?
    a. 3
    b. 4

10. Have you completed an OB/GYN rotation yet?
    a. Yes
    b. No

11. How much experience have you had with prenatal care?
    a. None
    b. Some
    c. A lot

12. (If "some" or "a lot" have been selected) Roughly how many hours have you spent in a prenatal care setting? _____

13. (If "some" or "a lot" have been selected) To the best of your knowledge, how many patients have you seen in a prenatal care context? _____

14. Are you considering obstetrics or gynecology for your area of specialization?
    a. Yes
    b. No

15. What are you considering for your area of specialization?
    a. Family medicine
    b. Obstetrics and gynecology
    c. Surgery
    d. Dermatology
    e. Radiology
    f. Emergency medicine
    g. Internal medicine
    h. Anesthesiology
    i. Immunology
    j. Neurology
    k. Pathology
    l. Pediatrics
    m. Psychiatry
    n. Oncology
    o. Urology
    p. Undecided
    q. Something not listed here: _____

16. How would you characterize your hometown? (check one)

    _____ rural (unincorporated)

_____ small town (village or town)

_____ suburban (metropolitan area of a large city)

_____ small city (population < 30,000)

_____ medium-sized city (population 30,000 – 100,000)

_____ large city (population > 100,000)

17. Are you currently in a romantic relationship?
    a. Yes
    b. No

18. How long have you been in your current relationship? _____ months

19. Would you define your current relationship as monogamous (only involving you and one other person)?
    a. Yes
    b. No

20. How would you describe yourself?
    c. Straight/Heterosexual
    d. Bisexual
    e. Gay/Lesbian
    f. Unsure
    g. Other (specify) _____

21. In which region of the country are you from?
    h. Northeast
    i. Mid-Atlantic
    j. The South
    k. Midwest
    l. Pacific Northwest
    m. Southwest

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_____

Vita

Alison J. Patev was born in Worcester, Massachusetts in February 1991. After graduating from Trinity High School in Manchester, New Hampshire, she went on to receive a B.A in Psychology from Stonehill College (Easton, MA) in 2013. She then earned her M.S. in Experimental Psychology from Mississippi State University, and served as a lecturer at Mississippi State following conferral of her degree. She will receive her Ph.D. in Health Psychology from Virginia Commonwealth University in December 2021.